APRIL, 1930
Vol. XLII, No. 4
$4 a Year

OF MICH.

The American City

APR 5 1930

An Opportunity for Fine Public Service

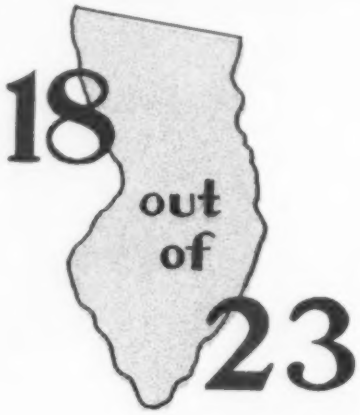
By ROBERT P. LAMONT
SECRETARY OF COMMERCE, U. S. A.

THE record-breaking public construction programs reported by State Governors for 1930 indicate that public works officials have an unusual opportunity for service to their communities by expediting sound projects to the best of their capacity. Substantial increases in contracts awarded during the first months of the year show that many officials have already risen to the emergency, by providing jobs at a time when they are needed.

There are few municipalities or counties in the United States in which further stimulus could not be given to the prompt letting of contracts for prudent public improvements. Bond issues are to be voted on in many cases and legislative action is involved in many others. By going ahead now, where it is within the financial resources of the community, the increased employment and stimulus to local trade will help to keep the people of the community prosperous, and the projects when completed should add to local convenience, prosperity and welfare.

This is a movement in which government officials and public-spirited citizens can render fine public service.

BREAD LINES? OR JOBS? *(See pages 5 and 113)*



New Jersey's Chief Cities, too

How do the country's foremost cities look upon TEXACO Asphalt paving?

This, and a series of similar advertisements, answer that question, a very significant question from the standpoint of municipal engineers and officials.

New Jersey, one of the most important of the Atlantic seaboard States, has developed 23 cities having a population above 25,000. Only three other States have a greater number of cities of this size.

Of New Jersey's 23 outstanding cities, 18 have seen fit to pave streets with TEXACO Asphalt, some more extensively than others. This represents three out of four, an overwhelming vote for TEXACO.

In the State's smaller communities, TEXACO Asphalt paving is equally popular. Resilient and durable TEXACO-paved streets serve more than 70 of the State's municipalities with less than 25,000 population.

Spring Street, Elizabeth, N. J., paved with TEXACO Asphaltic Concrete by the Elizabeth Paving Company, Elizabeth, N. J.

Morris Avenue, one of a number of thoroughfares of Atlantic City, N. J., paved with TEXACO Asphalt.

TEXACO ASPHALT

New York
Philadelphia
Richmond
Boston
Jacksonville

The Texas Company
ASPHALT SALES DEPT.
135 East 42nd St., New York City

Chicago
Cleveland
Kansas City
Houston
Dallas
Buffalo

- - - - - Index to CONTENTS, April, 1930 - - - - -

Airports and Aviation
Space-Time Planning and Airmindedness 104
Aviation Department 167

Billboards
New Regulatory Law, New Jersey 101

Cartoons
What Impression Will Your City Make? 149
None Too Soon 169

City Beautification
A Gardening Book for Our Town 106
Ways of Lacy-Patterned Loveliness 127
In Dixville, N. H. 127

City and Regional Planning and Zoning
A Town Plan for an 18,000-Acre Island 98
Space-Time Planning and Airmindedness 104
More About City Planning Commissions 118
Capital Budget Helps City Plans 123
A Peaceful Region Planned for Essen 139
Shall the Plan Grow Up with the Town? 148
How Tulsa Will Expend $6,230,000 162
Zoning and Planning Notes 177

Civic and Commercial Organizations
How Many Retail Stores Does a City Need? 131
Landing Field, Auto Ferry, Urged by Club. 152
Population Estimates by Secretaries 159

Conventions
When and Where 189

Crime and Crime Prevention
Discouraging News for Criminals 150

Engineering
Embankments Insure Flood Control 13
Constructing Drains in Michigan County 13
Who's Who, City and County Engineers 15

Finance
City Contracts and a Living Wage 92
Capital Budget 123
Improved Purchasing Methods 157
Curing Unfair Special Assessments 164
The Taxpayer's Dollar 169
The Municipal Bond Market 171

Fire Prevention and Control
Blazes in Rising Buildings 23
Who's Who in Public Safety 25
School for Fire Chiefs, Portland, Ore. 97
Just Another Reminder 128
Downtown Boston's Fire Defenses 129
Salvage Corps Prevents Water Damage 129
Federating Community Facilities 153
A Notable Fire Department Program 154
Life-Saving Training for Firemen 160
Public Interest in New Water-Tower 175
Fire-Alarm Box with Few Parts 197

Forestry
A Thought for Arbor Day 127
Pursuing a Long-Time Program 127
George Washington's Elm 127
A School Reforestation Project 145
The Cost of a Tree in Sheboygan 148

Forward Steps
Items Reported by Officials, etc. 150

Government and Administration
A City-Manager Charter by Evolution 112
A Councilman Campaigns with a Camera .. 132
Forward Steps for San Francisco 151
Orderly Progress, Bartlesville, Okla. 152

Grade Crossings
Problem Receives Official Consideration 23

Health and Sanitation
The Month in Public Health 173

Housing
Governor Roosevelt Urges Better Housing .. 114
A Municipal Responsibility? 136
Twelve Housing Needs 137
Problem Approached Systematically 151

Legal Decisions
Supreme Court and Ohio Park District Case. 112
The City's Legal Rights and Duties 179

Lighting
Accomplishments in Cleveland 110
New Glass for Street-Lighting Units 195
Water-polished Concrete Standards 285

Music
Philadelphia's Municipal Music Bureau 142
Observing National Music Week 175

News and Illustrations
Items for Officials 193

Parks and Recreation
Schools Best to Administer Playgrounds? ... 17
Keeping Boys on Summer Playgrounds 133
City's Life Enriched by Tradition 138
Massachusetts Looks Back 300 Years 140
A Pageant of Old Times 146
Charlotte's Easter Sunrise Celebration 171
Safe Enjoyment for Many Children 195

Pictures and Paragraphs
Items from Near and Far 126

Police
Radio Broadcasting, Uniform Crime Record System, Toledo 23
Who's Who in Public Safety 25
Policemen's Salaries in 49 Cities 108

The American City

ISSUED MONTHLY BY THE
American City Magazine Corporation
443 Fourth Ave., New York

EDGAR J. BUTTENHEIM, Pres. and Mgr.
HAROLD S. BUTTENHEIM, Editor
THEODORE R. KENDALL
Secretary and Engineering Editor
H. M. OLMSTED M. V. FULLER
MARTHA CANDLER
Associate Editors
HERBERT K. SAXE
Treasurer
PRENTICE C. FORD Assistant Manager
MYRON MacLEOD Advertising Manager

BRANCH OFFICES
Daily News Plaza, Chicago
TOM DIX, Vice-President
642 Hanna Building, Cleveland
GEORGE S. CONOVER, Manager
155 Montgomery Street, San Francisco
ROGER A. JOHNSTONE, Manager

Subscription, $4 per annum
(To any part of the world)
Single copies, 50¢
Back numbers available

Entered as second-class matter, July 29, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in U. S. A.

In THE MUNICIPAL INDEX (an 800-page annual volume) readers will find much material, including articles, lists and bibliographies on a wide variety of municipal and civic subjects, not published in the monthly issues of THE AMERICAN CITY.

Population
What Are Our 25 Largest Cities? 153

Power Plants
Pasadena Gets Low-Cost Power 116

Publications
Municipal and Civic Publications 185

Public Buildings
Atlanta's New City Hall 126
A Solution of the Museum Problem 134

Public Utilities
What Kind of Ownership? 124

Radio
Radio Dialogues in Ohio 97

Safety
Formula for Child-Life Saving 23
Safety Instruction and Junior Patrols 156

Sewers and Sewage Disposal
In Illinois 11
Disposal of Screenings, Allentown 11
Few Treatment Plants in Indiana 11
Bronx-Hutchinson-South Yonkers Plant 87
Omission in Newburgh Article 96
A New Wisconsin Sewage District 147
Dry-Basin Type Sewage Ejectors 195
New Type Sewer and Conduit Rods 197
Storm-Water Pumping Station, Los Angeles 197
Mechanical Scavengers, Milwaukee 199

Street Cleaning and Snow Removal
Association Assisting Street Cleaning Department 21
Minimizing Repairs of Flusher Nozzles 21
A Two-Bit Fine Reduces Street Litter 21
Prizes for Trash-Can Designs 21
An Analysis of Street Cleaning 130
Tractor Snow-Plow Improved 195

Streets and Highways
Laying Dust on Unpaved Streets 13
The Maintenance Man 13
Cold-Laid Asphalt Paving Mixtures 107
Street Repairs, Oil City, Pa. 115
Washboards 119
A New Road Along Puget Sound 128
Streets and Highways in Iceland 135
Spring Scrapers for Highways 193, 201
An All-Steel, 3-Speed Road Roller 203
New Premolded Expansion Joints 205
An Adjustable Road Maintainer 205

Traffic
Fact-Finding Traffic Survey, Atlanta 89
Alternative Street Plan for Traffic 101
High-Efficiency Signaling 102
Split Amber Feature, East Cleveland 153
Semi-Vehicle-Actuated Signals 193
A Three-Period Traffic-Signal Timer 199
Reflecting-Type Traffic Signs 203

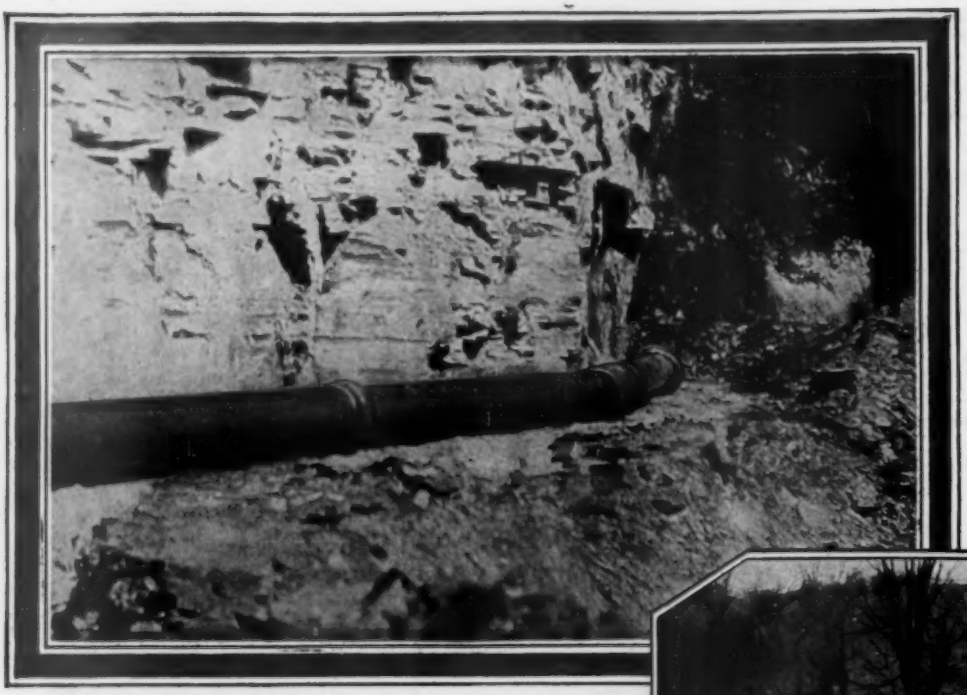
Unemployment
Are Your City and County Doing Their Utmost? 5
Practical Suggestions from Philadelphia and Cincinnati 5
Reclaiming of Blighted Districts 5
An Unemployment Program 5
The Cincinnati Plan at Work 113
Great Increase in Relief Expenditures and in Unemployment Reported 114

Waste Collection and Disposal
Generating Steam at City Incinerator 19
Over 6,700 Cans per Collection 19
Incinerating Costs, Long Branch, N. J. 19
Municipal Incinerator Operated by Contract in San Jose 19
Refuse Collection and Disposal at Cologne, Germany 93
Wake-Up and Clean-Up Weeks 125
Municipal Refuse Incinerator 250 Feet from City Hall Site 141
Incinerating Municipal Refuse 193

Water
Industrial Meters Tested Before Installation in Macon 7
Collecting Quarterly Rates 7
Who's Who in Water Supply 9
Stop Every Water-Tank Leak 122
A Knowledge of Flow Tests Is Helpful ... 143
Iron Removal and Softening Cause Increase in Consumption of Water 155
Self-Oiling, Weatherproof Turbine Head .. 201

Who's Who
Portrait Photographs 9, 15, 25

For Index to Advertisements see page preceding back cover.



deLavaud pipe line along the bank of a winding creek. Orchard Park, New York

Below:—deLavaud pipe for the above installation arrives ahead of the construction gang.

Strong, flexible deLavaud pipe for this long winding installation

It certainly took sturdy, flexible pipe to make good under the conditions shown here. The contract called for a pipe line to be laid on a rocky shelf following along the bank of a winding creek. deLavaud pipe was chosen for the job and it is fulfilling the requirements to the letter.

For deLavaud pipe combines superior strength with flexibility. It is made by pouring molten iron into a rapidly revolving cylindrical mold. Centrifugal force holds the molten metal against the sides of the mold and impurities are driven out at the center with a pressure forty times greater than gravity.

The controlled annealing process is another reason for the strength and flexibility of deLavaud pipe. Every length is placed in a specially constructed oven and uniformly annealed. This helps bring about the fine, even-grained texture of the metal and eliminates any possibility of casting strains.

deLavaud pipe is manufactured in accordance with U. S. government specifications. We are also making and furnishing this product in the various thicknesses and weights shown in the specifications of the American Water Works Association and the American Gas Association. Write for complete information about deLavaud pipe today.

United States Pipe and Foundry Co., Burlington, N.J.

Our pipe bears the "Q-Check" trademark of The Cast Iron Pipe Research Association

Sales Offices: New York, Philadelphia, Pittsburgh, Cleveland, Buffalo, Chicago, Dallas, Birmingham, Kansas City, Minneapolis, Seattle, San Francisco, Los Angeles

BREAD LINES? or JOBS?

An Urgent Problem for CITY and COUNTY OFFICIALS

Are Your City and County Doing Their Utmost?

WHEN employment is less than normal, there comes to public officials an opportunity which is more than normal for service to their respective communities. Jobs, not doles, are—or should be—the American answer to lack of work.

The construction program of the Federal Government is being speeded up; and many governors and mayors have reported to the White House or to the Department of Commerce in recent weeks increased local stimulus to public works construction and maintenance projects for 1930 as compared with 1929.

Such activities are aiding not a little in the industrial and business recovery now under way. It is believed, however, that there are few municipalities or counties in the United States in which further stimulus could not be given to the prompt and prudent letting of contracts for public improvements which, during their construction, would give increased employment to labor and industry, and which, when completed, would add to local convenience, prosperity and welfare.

On the front cover of this issue THE AMERICAN CITY has the privilege of publishing a special message to municipal officials, addressed to this magazine by the Secretary of Commerce. The upper of the two photographs, which was taken in New York last month, shows one of the bread lines which have been giving distressing evidence of abnormal unemployment.

Speedy action on Mr. Lamont's plea, in cities and counties which are not already doing their utmost in the letting of contracts for needed public works, is a governmental responsibility of immediate and major importance.

Practical Suggestions from Philadelphia and Cincinnati

"PROGRAM for the Regularization of Employment and the Decrease of Unemployment in Philadelphia" is the title of a pamphlet, obtainable from the Philadelphia Chamber of Commerce, which offers many suggestions of practical value. Not only to relieve present distress, but to set up the machinery which will minimize the likelihood of a recurrence of present conditions, is the challenge of today to public officials and civic organization leaders. The Philadelphia report, based in part on a conference held at the University of Pennsylvania, April 30, 1929, has been approved by the Chamber of Commerce. It recommends a permanent local organization to be known as the Institute for the Regularization of Employment. To give technical advice on methods of regularizing industry at the request of individual businesses or of trade associations would be the primary function of this Institute. Its secondary function would be a systematic endeavor to educate employers in general in the importance and methods of regularization. The plan also provides for a better system of connecting workers and jobs in the Philadelphia district; prosperity reserves of public work that may be drawn on when private industry is slack; vocational training and vocational guidance in the public schools, to cut down the number of casual workers and of the unemployable; and the inauguration of the most effective working program for the regularization of employment and the elimination of socially harmful unemployment.

Cincinnati, like Philadelphia, did not wait until the stock market crashes of last fall to begin a careful study of the problem of the man out of a job. Indeed, Cincinnati has had in operation for more than a year, under the leadership of its City Manager and Director of Public Welfare, a Permanent Committee on Stabilizing Employment. At the request of this magazine, Colonel Sherrill has told the story briefly on pages 113 and 114 of this issue.

Great Opportunities in the Reclamation of Blighted Districts

IN addition to stimulating public works activities, mayors and city managers have exceptional opportunities during the present period of business depression to arouse their communities to the importance of slum elimination and housing betterment. In talks before local civic and commercial organizations, municipal executives might well emulate Governor Roosevelt of New York in his plea to the New York Board of Trade.

The "Stabilization of Construction" programs, which are being issued serially by the Civic Development Department of the Chamber of Commerce of the United States, are worth study in this connection also. In the statement issued March 1, for example, Philadelphia's program for repairs and betterments, as presented at a meeting called by Mayor Mackey at the request of the Philadelphia Building Congress, is outlined. At this meeting the President of the Congress, D. Knickerbacker Boyd, referred to the bad condition of many buildings in the city and urged that steps be taken not only by the city but by individual householders and building owners toward cleaning up premises and buildings, which would not only promptly afford employment but also make for better health, fire prevention and the improvement and conservation of property. Mr. Boyd also emphasized the importance of beginning at once the work of demolition of any existing buildings necessary to provide space for new structures, the contracts for which might not be awarded till later. He pointed to the possibility of a further program for rehabilitating portions of old Philadelphia in the interest of eliminating slum conditions and providing playgrounds, open spaces, recreation centers and new residential areas, thus modernizing such sections and reclaiming for the city vast sums in the way of taxes now going to outlying sections and suburbs.

An Unemployment Program Needing the Combined Efforts of City, State and Nation

IN the March number of *The American Labor Legislation Review*, John B. Andrews, the clear-headed Secretary of the American Association for Labor Legislation, outlines a program in which city, state and nation might well unite:. To quote in part:

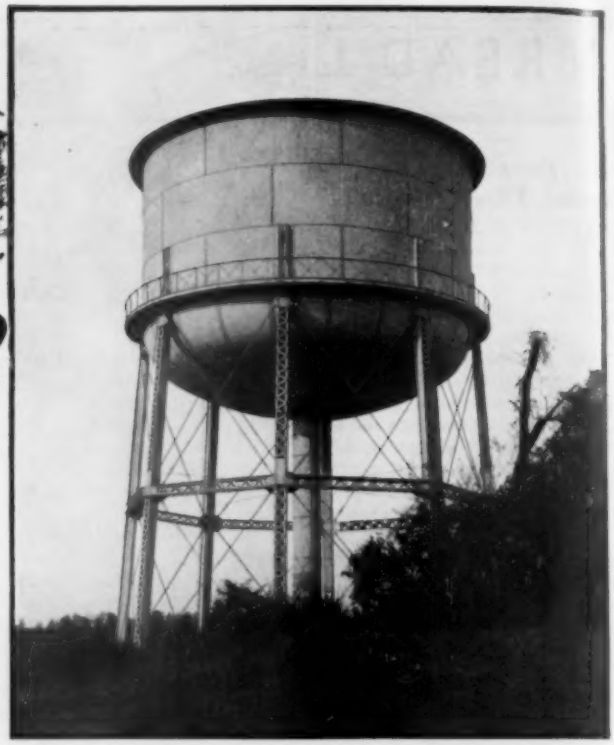
"Perhaps it is well that the steam shovel should be the high symbol of preparedness in the present widespread unemployment. 'Construction is the balance wheel of American industry.' But while commending the magnificent appeal by President Hoover for emergency action, the country is gradually learning that *advance plans and appropriations are necessary if emergency appeals are to result in prompt, effective action.* This is especially true of public works in the states whose legislatures do not meet every year. Inevitably the realization must come that *it is short-sighted to fail to adopt a permanent program for dealing with unemployment.* When the emergency comes, too many steam shovels are idle owing to lack of advance plans and appropriations. We need *long-range planning of public works.*

"The importance of *trustworthy employment statistics* has never been more apparent than during recent weeks. If a little controversy will put certain officials on their mettle as well as tend to 'vitalize statistics,' the gain may be considerable.

"With extensive unemployment has usually come renewed interest in *public employment bureaus.* There is well-considered federal-state legislation before Congress—but it is introduced by Senator Wagner, a Democrat, and not by a representative of the federal administration. Lacking responsible party leadership, the constructive program against unemployment, announced as long ago as 1921 under Herbert Hoover's chairmanship, is falling under cynical disfavor among many who at one time were eager to cooperate. This is a distinct loss to the nation. Without responsible leadership we surely do perish." . . .

Why be criticized for torn-up streets?

Improved water service may be secured with existing mains by adding large elevated storage



This 400,000-gallon Horton elevated tank at Portsmouth, Ohio, serves a high level district, the water in which formerly had to be re-pumped. No extra mains were needed in making this installation.

MANY municipalities have been able to secure greatly improved water service—and at less annual cost—with existing "outgrown" mains simply by adding ample Horton elevated water storage.

This improvement includes uniformly good pressures in all parts of the system; ability to handle peak loads and abnormal demand due to fire or breakdown; no interruptions from pump stoppages . . . . all secured at lower annual cost through the more efficient use of pumps.

It is possible to make the above improvements without the expense and bother of torn-up streets for replacements of mains because Horton elevated storage permits existing mains to work 24 hours a day instead of 14 to 16. During periods of low consumption, as at night, water is pumped into storage. When needed to take care of peak loads it is fed back into the distribution system. Costly main enlargements and increased pumping capacity are thus postponed for years.

It is also possible that elevated storage will give your city a more advantageous fire insurance classification. We are glad to cooperate with your engineer on water system problems and furnish estimates on tanks he may recommend. Address our nearest office.

CHICAGO BRIDGE & IRON WORKS

Chicago	2127 Old Colony Bldg.	Philadelphia	1616 Jefferson Bldg.	Atlanta	1014 Healey Bldg
New York	3106 Hudson Terminal	Boston	1501 Consol. Gas Bldg.	San Francisco	1033 Rialto Bldg.
Cleveland	2236 Union Trust Bldg.	Birmingham	1503 50th Street, N.	Seattle	L. C. Smith Bldg.
Detroit	1501 Lafayette Bldg.	Dallas	3306 Magnolia Bldg	Havana, Cuba	Apartado 2507

HORTON TANKS

AC4—Gray

ITEMS and ABSTRACTS on WATER SUPPLY AND PURIFICATION

Re-Sanding Proposed for Filters at Cincinnati, Ohio

THE filters at Cincinnati have been in operation 21 years and, because of the treatment, employing lime and iron as coagulants, the effective size of the sand has increased steadily, so that at present the effective size is 0.50-mm. with a uniformity coefficient of 1.29 and 50.8 per cent acid-soluble. The sand bed has increased in depth, and sand is lost in the winter time during the washing process.

The plan of reconstructing the filter beds is as follows: gravel 14 inches in depth will not be disturbed; the 28-inch layer of sand will consist of 12 to 16 inches of new sand with an elevation 26 inches below the troughs in the filters. It is estimated that the effective size of the top 12 inches will be 0.34 to 0.38-mm.

Sand is to be obtained locally from the Ohio River, and a small sand plant has been built to dry and screen this to the size desired, because the effective size as taken from the river is about 0.24-mm. Assuming a wastage of 30 per cent in the screening process, it will be necessary to handle 3,800 tons to replace 16 inches of sand in the filters, and about the same amount of sand will have to be removed from the filters. It is planned to handle this with an hydraulic ejector and through a 4-inch pipe to a waste pile 900 feet distant.

Local sand will cost $1.60 per ton delivered, whereas sand from Youngstown and from Illinois has been quoted at $6.29 and $6.90 per ton delivered. So it is estimated that a considerable saving can be effected by using the local sand.

—From a paper read before the Eighth Annual Ohio Conference on Water Purification.

Industrial Meters Tested Before Installation in Macon

THE Macon, Ga., Water Department has approximately 13,000 water meters in service. Of this number, about 130 are industrial meters, a meter of 2 inches or larger being considered an industrial meter.

When an industrial meter is purchased, it is shipped to the meter shop, where it is given a thorough inspection by the shop foreman, placed on a testing machine and tested to be sure that it will register accurately all the water that passes through it. This proves that the meter has not been damaged in shipping.

After these preliminary precautions have been taken, the meter is turned over to the proper department for setting. A box of sufficient size is built in which to set the meter, making sure that it is large enough to permit the making of any needed repairs at a later date.

A cut-off valve is placed on each side of the meter for use in case it may be necessary to remove it for any purpose and to save as much inconvenience to the consumer as possible. The placing of these valves, which is compulsory, also saves water and prevents waste water from collecting in the meter box where men have to work.

When an industrial meter is once set in position, it is never disturbed unless there is good reason to believe that it needs attention. If it stops or there is reason to believe that it is not registering all the water that passes through it, a meter foreman is sent out to inspect it and replace any parts that he may find too badly worn to give good and accurate service. Repair parts are carried in stock at all times for this purpose. While the meter is apart, it is cleaned and given a thorough inspection, and then tested.

To test one of these large industrial meters in place, a tap is made on the service line just outside the meter on the outlet side between the meter and the cut-off valve, as large as the service will permit. A correct meter is placed on this newly made tap, cuting off the water from the building with the cut-off provided for that purpose. The meter is then tested, allowing the waste water to run out into the gutter or street until the meter is running satisfactorily. The cut-off on the outlet side of the meter keeps the water from the building from running back into the meter box, and eliminates the necessity of pumping it out. After the meter has been tested, the test meter is disconnected, the tap is plugged up and the water turned on in the line to the building.

Two-inch meters are brought into the shop for repairs and tests, but are not usually kept there more than one day. A nipple is placed where the meter is removed, so that the service may be continued.

Testing of meters is done at night and on holidays, if necessary, and is always done at a time most convenient to the consumer.

T. E. P. WOODWARD,
Engineer, Board of Water Commissioners.

Quarterly Rates Collected Alternately from Three Districts

FOR the assessment and collection of water rates, the city of Milwaukee, Wis., has been divided into three practically equal districts. Water rates are collected quarterly, so that one district is paying each month. Therefore, when the first district is collecting, the second is assessing, and the third has an interim month. This plan has greatly equalized the work of the division, and the peak periods under the old plan of collecting from the entire city quarterly, have been leveled down so as to be scarcely perceptible.

Bills for water rates are delivered by the meter reader, as there are no authorized collectors nor pay stations. The Superintendent of Water-Works is the only person authorized by charter to collect the water rates. There are, however, about 200 merchants in the city, mostly druggists and department stores, who are collecting water rates, acting as agents for the consumers and not as agents for the utility. They collect the bills and at intervals of several days send them to the water-works office with their checks covering the total amount. The bills are receipted and returned to the merchant. No authority is or can be given to the merchant to receipt the bills. The consumer may then call for the receipt, if he so desires.

Between 40 and 50 per cent of the total number of bills are handled by these unauthorized collectors with no expense to the department. This is of course done as an advertising scheme to bring the consumer to the place of business to pay the bill, and again to call for the receipt. In most cases this service is rendered gratis by the merchant. By this system, the public is accommodated in a great measure without any expense to the department, which necessarily would be considerable if pay stations of the number now performing this service were established.

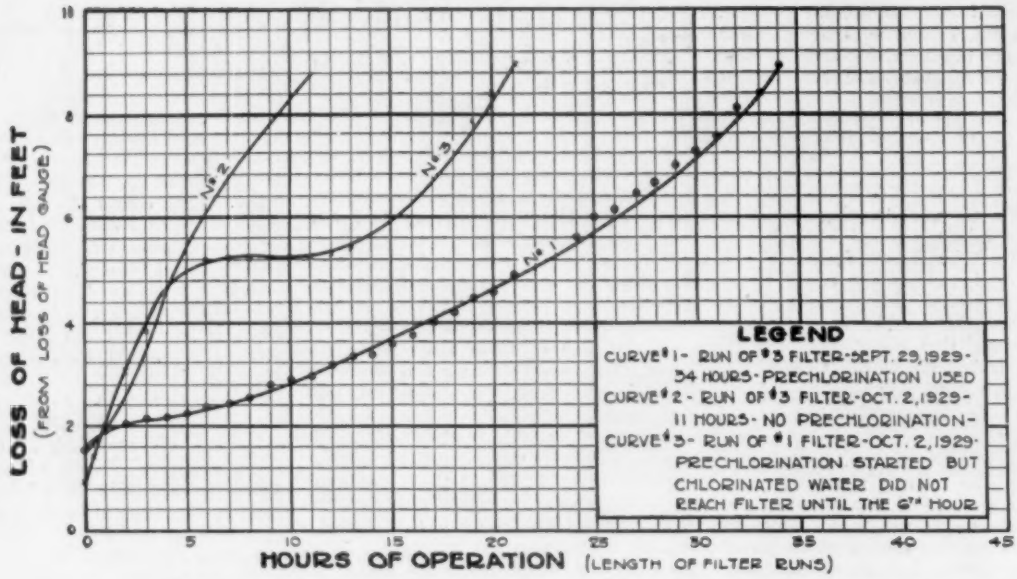
Twenty days are allowed for the collection in each district. To all bills remaining unpaid on the 21st day of the month in which they become due, a penalty of 5 per cent is added for collection. Approximately 10 per cent of the consumers pay the penalty. According to the same charter provision, if bills remain unpaid for ten days after the penalty has been added, the water may be turned off, and it will not be turned on again until all arrearages are paid, together with the sum of $2 for turning the water off and on.

H. P. BOHMANN,
Superintendent of Water-Works.

Join the A. W. W. A.

THERE are many active water-works officials in the United States and Canada who are not members of the American Water Works Association. Both the individuals and the Association are losers because of this. The Association conducts many activities for service to individual members through its many committees. It publishes a monthly journal which is of great help to water-works men, as it carries complete convention papers and many abstracts of articles published in technical magazines on water-works practice. Send your name to Arthur Gorman, Chairman, Membership Committee, American Water Works Association, 29 West 39th Street, New York City, today, with a request that you be enrolled.

They TRIPLED their FILTER RUN by PRECHLORINATION


LOSS OF HEAD - IN FEET
(FROM LOSS OF HEAD GAUGE)
HOURS OF OPERATION (LENGTH OF FILTER RUNS)
No 2
No 3
No 1
LEGEND
CURVE #1 - RUN OF #3 FILTER-SEPT. 29, 1929-
34 HOURS-PRECHLORINATION USED
CURVE #2 - RUN OF #3 FILTER-OCT. 2, 1929-
11 HOURS-NO PRECHLORINATION-
CURVE #3 - RUN OF #1 FILTER-OCT. 2, 1929-
PRECHLORINATION STARTED BUT
CHLORINATED WATER DID NOT
REACH FILTER UNTIL THE 6TH HOUR

EFFECT OF PRECHLORINATION ON FILTER RUNS

Filtration Plant, Barberton Water Dept., Barberton, Ohio

Prechlorination has saved both time and money at the Barberton, Ohio, Filtration Plant. The above diagram proves that conclusively.

Prechlorination is real economy at nearly every water works plant, because:

It lengthens filter runs.
Saves wash water—also filtered water to waste.
Reduces labor.
Controls micro-organisms in basins.
Gives protection against heavy bacterial loads to filters.
Improves coagulation.

"The Only Safe Water is Sterilized Water"

Prechlorination with W. & T. chlorinators is proving a profitable investment in many plants. Write us for technical bulletins on **prechlorination.**

WALLACE & TIERNAN

COMPANY, INCORPORATED

Manufacturers of Chlorine Control Apparatus

NEWARK - - - NEW JERSEY

SA-22

BALTIMORE, BOSTON, BUFFALO, CHARLESTON, CHARLOTTE, CHATTANOOGA, CHICAGO, CLEVELAND, DALLAS, DENVER, DETROIT, INDIANAPOLIS, JACKSONVILLE, KANSAS CITY, KNOXVILLE, LEXINGTON, LINCOLN, LOS ANGELES, MINNEAPOLIS, NEW YORK, OGDEN, OKLAHOMA CITY, PHILADELPHIA, PITTSBURGH, ROANOKE, SAN FRANCISCO, SEATTLE, SPOKANE, ST. LOUIS, SYRACUSE. WALLACE & TIERNAN, LTD., TORONTO, WINNIPEG, CANADA. WALLACE & TIERNAN, LTD., LONDON, ENGLAND

ALSO SEE OUR ADVERTISEMENT ON PAGE 14

WHO'S WHO IN WATER SUPPLY

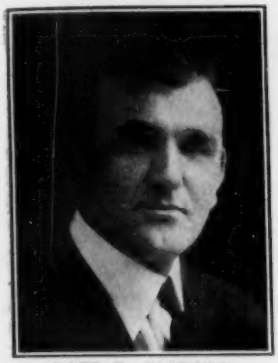
The 28th of a Series of Portraits of Water Works Officials Which Has Appeared Monthly Since January, 1928

JOSEPH E. YOUNG
Supt., Water Dept.
Fergus Falls, Minn.
(Appointed 1928)

C. D. SHIPPY
Supt., Water Works
Oelwein, Iowa
(Appointed 1907)

JAMES G. ELLIS
Supt., Water Works
Columbus, Miss.
(Appointed 1906)

C. C. GETCHELL
Mgr., Water Works, Bristol, Warren, Barrington, R. I.
(Appointed 1929)



PAUL E. CAPRARO
Supt., Water & Light Dept.
Two Rivers, Wis.
(Appointed 1923)

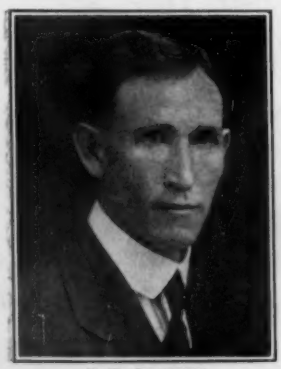
HAROLD A. WARNER
Supt., Water & Light Dept.
Moorhead, Minn.
(Appointed 1930)

JOHN F. PEARSON
Supt., Water & Light Plant
Orangeburg, S. C.
(Appointed 1919)

F. L. BICKERSTAFF
Water Supt.
Hobart, Okla.
(Appointed 1922)

HERBERT S. GROVE
Supt., Board of Water Commissioners, Stillwater, Minn.
(Appointed 1929)

ANDREW W. HEBBRING
Supt., Water Works
Wauwatosa, Wis.
(Appointed 1916)



J. P. RECTER
Water Supt.
Norman, Okla.
(Appointed 1914)

CHARLES P. TOWNSEND
Supt., Water Plant
Abbeville, S. C.
(Appointed 1920)

W. D. LEONARD
Mgr., Wis. Gas & Elec. Co.
Fort Atkinson, Wis.
(Appointed 1912)

H. L. WILLIAMS
Supt., Water Works
Ludington, Mich.
(Appointed 1892)

Guardian of the City's Air

It is difficult, perhaps, for the hurried citizen to read the rich significance of all he sees. That building there, for instance, his city's Sterling Destructor plant, is merely another pile of stone and steel to him. But if he saw penetratingly, he would know it for the guardian of the air he breathes, for the guardian of its purity and sweetness.

The disposal of garbage and refuse in a Sterling Destructor can never give rise to offense. In the furnaces, where it is consumed in an intense fire of its own providing, every gas is completely oxidized. From those furnaces the gases pass to the stacks, sterile and odorless, and mingle imperceptibly with the air.

And there is more to the story than that. There are the construction and economy phases, told in the Sterling Destructor Booklet. Write for a copy.

THE C. O. BARTLETT & SNOW CO.
6220 Harvard Ave. Cleveland, Ohio

Bartlett - Snow

Refuse Disposal Plants

ITEMS and ABSTRACTS on SEWERAGE AND SEWAGE DISPOSAL

Sewerage and Sewage Treatment in Illinois

OF the 1,113 cities, villages and incorporated towns in Illinois, 508 have public water-supplies and 411 have some form of public sewer system. There are some cities that have not even installed water-supply systems, but have installed some drains for ground drainage, to which a few cesspool and septic tank overflows have been connected. Therefore, it is difficult to state just what is and what is not a sewer system. Of the 411 sewer systems considered, 154 were installed as combined storm and sanitary sewers, 142 as separate sanitary sewers, and 115 as mixed systems of sewers and drain tile which are sufficiently extensive to be classed as public sewer systems. Storm sewers have not been considered if they carry no sewage.

Sewage treatment works are designed on the basis of population and volume loads. Of 131 sewage treatment works in Illinois, 59 receive sewage flows equal to or greater than 100 gallons per capita per day, 61 receive flows between 50 and 100 gallons per capita per day, and 11 receive flows less than 50 gallons per capita per day. In each case the per capita flow has been obtained by using the entire population of the city. Sewage flows for the smaller cities were taken almost entirely as equivalent to the water consumption because of the lack of direct measurements.

One of the first, if not the first, sewage treatment works to be constructed in Illinois was at Pullman, now a part of Chicago. The oldest treatment works according to the files of the State Health Department were built in 1892 at Dwight. The accompanying table brings out the slow growth and development of sewage treatment works between 1892 and 1902. The installation of sewage works began to increase about 1904 and it has since continued at a rather uniform rate except as retarded during the war period.

SEWAGE TREATMENT PLANTS IN ILLINOIS BY YEARS

Year	Plants with Secondary Units Treating Combined Sewage	Plants with Secondary Units Treating Sanitary Sewage	Plants with Primary Units Only, Treating Combined Sewage	Plants with Primary Units Only, Treating Sanitary Sewage	Total Number of Plants of All Types
1892	0	1	0	0	1
1897	0	1	0	1	2
1902	0	2	2	2	6
1907	1	6	4	8	19
1912	3	9	9	21	42
1917	8	22	15	39	84
1922	18	32	17	46	113
1927	32	42	21	64	159

Disposal of Sewage Screenings at Allentown, Pa.

IN 1921, the city of Allentown installed a plant for the treatment of sewage. This plant was temporary in character and treated sewage as collected from only about 10 per cent of the area of the city. It was continuous in operation until December 1, 1929. The plant was of the direct oxidation type, located west of Eighth Street between Lawrence Street and the Little Lehigh River.

The sewage treated entered the plant through an 18-inch cast iron riser, flowed through a shallow concrete trough 3 feet wide, thence between ¾-inch vertical rods spaced 3 feet center to center, and then upon inclined steel plate screens. These screens are approximately 8 feet square and perforated by ¼-inch holes. The screenings were swept mechanically upon the floor of the screen house, where they were collected twice a day in 16-quart buckets. They were then conveyed by hand to the vicinity of the plant and covered with lime tailings. This scheme operated very successfully. The screenings gradually digested and decreased in volume, and the lime prevented and eliminated putrefactive odors.

On December 1, 1929, the city discontinued operations at the Lawrence Street sewage treatment plant and transferred operations to the new plant situated on Kline's Island, located in the Lehigh River just south of the William Penn Highway. The sewage flows to the plant by gravity and enters the treatment plant through a 5-foot circular reinforced concrete sewer at the pumping-station, where it is pumped to the skimming detritus tanks. The plant is of the Imhoff tank, sprinkling filter type and will receive the sewage from the entire city.

The coarse solids secured from the bottom or underflow of the detritus tanks are passed through the two Dorr fine screens, each of which is capable of handling the underflow at a constant rate of 3,500,000 gallons per day. The screens are of the cylinder type, having slots ⅛-inch wide.

The screenings are removed from the screens by a bucket elevator to a storage chute, where they are stored until a sufficient quantity has accumulated to operate the next step in the disposal.

The next operation is dewatering the screenings, which is accomplished by means of an hydraulic press delivering a pressure of approximately 100 pounds per square inch on the screenings cake. The press is equipped with several steel slat curbs with 1/16-inch spaces between the slats, each curb having a capacity of about 10 cubic feet. The curb is of the latch and hinge type. After the screenings are dewatered, they are incinerated.

The incinerator is of the firebrick type, consisting of an inclined drying hearth, combustion chamber, stack, ash-pit, gas burner and other miscellaneous equipment. The screenings are placed on the drying hearth, and the flame from the gas burner is thrown directly in contact with them until they are dried out sufficiently to burn without the addition of fuel.

Gas is at present furnished by the Allentown-Bethlehem Gas Co., but it is hoped that gas will be collected from the Imhoff tanks and used as fuel when the plant is in operation for a year or more.

As the plant has been in operation only since December 1, 1929, very few operating data are available. The screenings are reduced 50 per cent in volume by the hydraulic press, and the volume of the screenings cake is further reduced by incineration about 75 per cent. The resultant ash is dark and odorless and closely resembles the ash secured from the burning of wood. It is used for filling in low ground around the plant.

The sewage treatment plant was designed and construction supervised by Metcalf & Eddy, consulting engineers, Boston, Mass., and is operated under the general supervision of the City Engineer, with the assistance of the consulting engineers. The chief operator is Warren J. Heimbach, and the chemist in charge is Harry J. Krum.

EARLE W. MECKLEY,
City Engineer.

Few Sewage Treatment Plants in Indiana

ACCORDING to a statement made by Lewis S. Finch, Chief Engineer, Indiana State Board of Health, there are relatively few municipal sewage treatment plants in existence in Indiana. The various types of treatment plants in operation are as listed below.

It is expected that, during 1930, cities and towns with an aggregate population of at least 450,000 people will have work under construction. This amounts to slightly over 10 per cent of the entire population of the state. The larger cities in this group are Fort Wayne, South Bend, East Chicago, Muncie, Anderson, Kokomo and New Castle.

Type of Plant	Now in Operation	To Be Under Construction This Season
Septic tanks	10	
Septic tanks and contact bed	3	
Septic tanks and sprinkling filter	2	
Imhoff tanks	8	1
Imhoff tanks and contact bed	1	
Imhoff tanks and sprinkling filter	6	2
Sedimentation, separate sludge digestion and sprinkling filters	2	
Sedimentation, separate sludge digestion, sprinkling filters and chlorination	1	
Sedimentation, separate sludge digestion, sprinkling filters and gas collection utilization		1
Activated sludge	1	
	34	*

Wanted—

more streets

built—

—with

VISION!

One of the greatest authorities in this country on concrete highway engineering says:

"—And I would put expansion joints every 35 feet, with some kind of expansion joint filler that would really take care of temperature and moisture variations."

Failures are *built into* roads and streets when no provision is made for "really taking care of temperature and moisture variations."

And, without intent, the quotation describes to the letter the performance of Servicised Expansion Joint.

SERVICISED

LOOK FOR IT ON ALL MATERIALS

SERVICISED APPROVED PRODUCTS

Expansion Joints for Roads, Streets, Sidewalks, Buildings

Fibrated Asphalt Plank for Bridges, Runways, Platforms

Highway Crossing

Rail Filler and Track Insulation

Sewer Pipe Jointing

Industrial Flooring

Waterproofing

Other Fibrated Bituminous Construction Materials

What Are Servicised Expansion Joints?

They are premoulded safety strips which protect concrete structures against the destructive results of stresses set up by natural causes.

They are produced from specially refined asphalts to which fibers are added for elasticity and reinforcement, then formed hot under pressure into the required shapes.

They do not deteriorate in stock or on the job and can be handled as easily as a board.

By protecting municipal structures of the rigid type against cracks and bursts due to rapid expansion and contraction, the money is saved for more municipal construction.

Begin now by getting Catalog 11 *and estimates for that job in hand.*

SERVICISED PREMOULDED PRODUCTS, INC.

REG. U.S. PAT. OFF. © 1918

53 West Jackson Blvd., Chicago, Ill.

Factory 6051 W. 65th St. CHICAGO, ILLINOIS

GENERAL DISTRIBUTORS For Products Manufactured By

SERVICISED PRODUCTS CORPORATION

DISTRIBUTORS and DEALERS IN PRINCIPAL TRADING CENTERS

ITEMS and ABSTRACTS for ENGINEERING AND HIGHWAY DEPARTMENTS

Laying Dust on St. Louis' Unpaved Streets

PREVIOUS to 1927, the prinicipal method of laying dust on unpaved streets in St. Louis was by sprinkling with water frequently during the year, which was very expensive and unsatisfactory. Since 1927, dust prevention has been carried on entirely by the oiling of Telform macadam and unmade streets.

At the beginning of each year of oiling, the roadbeds are graded and carefully surfaced, ditches cleaned to insure good drainage and all surplus dirt removed. It has been found that the best results are obtained by using an oil of medium gravity, as a very light oil dries up too quickly, while the heavier oils will not penetrate the surface quickly enough to prevent the skidding of automobiles or the picking-up and carrying-away of the oil onto the hard-paved streets. In some instances, however, this condition is eliminated by the oiled surface sanding.

The best results have been obtained with an oil of a gravity between 0.930 and 1.04 at 15 degrees Centigrade. The oil is heated to a temperature between 225 and 275 degrees Fahrenheit and three applications are made at intervals during the season, using approximately ½-gallon to the square yard for the season's work.

On streets that have not been oiled before, ordinarily three applications of oil at intervals will mantain the roadway in good condition during the season, while on streets that have been oiled three years or longer, a substantial oil mat is usually formed, after which it is necessary to exercise considerable care in the amount of oil to be applied and the frequency of the application. This oiling is very light, approximately one gallon to 10 square yards serving for the entire season. The mat formed on oiled streets does not last indefinitely and is soon broken up by frost action during the winter or by heavy traffic. When this condition exists, it becomes necessary to rescarify the streets and the oiling process is started all over again.

The first oiling of streets in St. Louis was in 1912, at which time two oil wagons of 500 gallons capacity each were used and approximately 220,000 gallons of oil applied on 48 miles of streets. In 1915, a 1,000-gallon oil truck was purchased and put into service with one oil wagon. Two 15,000-gallon storage tanks were also erected. With this equipment 86 miles of streets were oiled, using approximately 760,000 gallons of oil.

The following year an additional 1,000-gallon oil truck was purchased and two additional 15,000-gallon tanks were built, giving a storage capacity of 60,000 gallons. The use of the oil wagon was discontinued, and with the two truck oilers 130 miles of streets were oiled, using approximately 885,000 gallons of oil.

Since discontinuing the sprinkling of streets with water in 1927, approximately 202 miles of streets have been oiled annually, using two of the three oil trucks continuously during the oiling season and only occasionally using the third truck.

During the fiscal year ending April 1, 1929, over 200 miles or approximately 2,125,000 square yards of surface were oiled, at a total cost of $42,448.58, or about $210.14 per mile or 2 cents a square yard. The price of oil during this time was 4.4 cents per gallon, and the labor cost of handling the oil received in tank cars and transferred into the storage tanks, as well as the heating and distributing of the oil on the street, was approximately 1¾ cents per gallon. Whenever it is necessary to do any sanding of the oiled surface, the cost varies for labor and material from ¼- to ½-cent per square yard in place.

J. M. SLATER,
Street Commissioner.

The Maintenance Man

IS the highway maintenance man given full credit for the work he does and for the general excellent condition of the present-day highways?

To the average layman driving along a country road after a heavy rain, the truck to which is attached a heavy scraper is often looked on as a nuisance and an impediment to fast traffic. If it were not for the maintenance man, however, always on the job after rains and during the spring months, the highways would be in very poor condition and motoring would be much less enjoyable and assured.

The maintenance man has a certain section of highway to keep in good condition and this is usually of such length that he must be on the job regularly. Seldom will one find patrolled highways that are not in excellent shape.

A certain pride in accomplishing his job keeps the maintenance man alert to the details of his work, and if he can keep his section in better shape than the adjoining section, he will have a satisfaction in accomplishment that often is second only to his wage.

In every field of endeavor, there is a standard by which the workers are judged. In the highway field, this standard is high, and every worker is on his toes to improve the job. Every job should be a lasting memorial to the men who do the work.

While every branch of highway building deserves its credit, we believe the maintenance man should have special mention. His work is not a scheduled proposition. Unusual weather conditions will make the day doubly hard. He can never tell ahead of time what his job will be; washouts, cave-ins, chuck-holes, cracks in pavements—all must have his constant attention for protection to the motorist and to the highway as well.

The maintenance man does double duty. He guards the safety of the traveling public as well as protecting the investment of the builders. Give him his just credit.

—From *Arkansas Highways.*

Embankments Insure Flood Control

EMPLOYING a method said to have been successfully used in the Balkan States, where storm drainage and flood control are items of utmost importance, Los Angeles County, Calif., is spending an appropriation of $20,000 in building a mile of embankment that will hold the rush of flood waters along the washes from the foothills north of the city.

Several trucks, a steam shovel and a large crew of workers are busily employed in the construction of this barrier of stones and wire, which, it is expected, will take care of all flood water that may surge over the series of small dams that were previously built farther up the stream canyons. Formerly, these normally dry rivers, suddenly swelled by the impetus of storm water, wrought havoc to land and property along their banks and allowed quantities of valuable and much-needed water to rush off into the ocean.

The winding, gentle rise of these stream beds in the upper canyons offered admirable opportunity for the erection of small dams that not only checked the flow but formed settling basins where silt gradually collected, and the attendant growth of brush and trees made ideal retaining areas where the storm water, conserved in the upper strata, penetrated into the underground reservoirs from which the city wells of Arcadia, Calif., are supplied. Thus, through intelligent supervision and at comparatively small cost, annual flood ravages are averted and an ever-increasing quantity of needed water is saved.

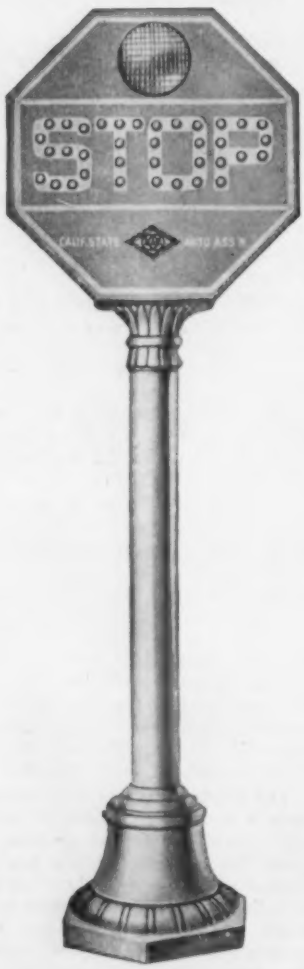
Construction of Drains in Michigan County

THE engineering department of the Macomb County, Mich., drain department set a new record last year when it supervised the construction of 23 closed drains costing $357,500.57, and 18 open drains costing $28,500.94.

In addition to supervising the construction of drains, the engineering department has prepared plans and specifications for 26 more closed drains, at an estimated cost of $808,929.23, and for 23 open drains, at an estimated cost of $43,847.08.

—*Michigan Roads and Airports.*

Why Did San Francisco Adopt W & T Dry Battery Operated Stop Street FLASHERS?



W & T Dry Battery Operated Stop Street Flasher Adopted by San Francisco

Because—actual field tests by city traffic experts showed that 98% of drivers come to a FULL STOP at arterial streets protected by W&T stop flashers.

Because—the 60 brilliant flashes per minute of the W&T flashers proved to be more effective than unilluminated stop signs during the day—with marked superiority during twilight and darkness.

Because—comparative costs both as to initial investment and maintenance show greater economy using W&T dry battery flashers over any other type flasher.

Because—of the known quality of W & T products and the reliability of W&T service—established over 16 years in making more than 10,000 installations in cities and towns in North America.

WALLACE & TIERNAN
COMPANY, INCORPORATED
NEWARK · NEW JERSEY

BALTIMORE BOSTON BUFFALO CHARLESTON CHARLOTTE CHATTANOOGA CHICAGO CLEVELAND
DALLAS DENVER DETROIT INDIANAPOLIS JACKSONVILLE KANSAS CITY KNOXVILLE LEXINGTON
LINCOLN LOS ANGELES MINNEAPOLIS NEW YORK OGDEN OKLAHOMA CITY PHILADELPHIA
PITTSBURGH ROANOKE SAN FRANCISCO SEATTLE SPOKANE ST. LOUIS SYRACUSE
WALLACE & TIERNAN, LTD., TORONTO, WINNIPEG, CANADA WALLACE & TIERNAN, LTD., LONDON, ENGLAND

Fl-10

ALSO SEE OUR ADVERTISEMENT ON PAGE 8

P. L. BROCKWAY
City Engineer
Wichita, Kans.
(Appointed 1917)

LOY E. SNEARY
Chief Engr. of Public Construction, Davenport, Iowa
(Appointed 1923)

JOHN S. McCULLOUGH
County Engr., Fond du Lac Co.
Fond du Lac, Wis.
(Appointed 1928)

JAMES W. COSTELLO
Chief Engr., Dept. of Public Affairs, Newark, N. J.
(Appointed 1921)

E. RUMSEY BRADSHAW
Commissioner of Public Works
Paducah, Ky.
(Appointed 1928)

WHO'S WHO IN CITY & COUNTY ENGINEERING

One of a Series of Portraits of Engineering Officials Which Has Appeared Monthly Since April, 1928

C. H. STEVENS
City Engineer
Mason City, Iowa
(Appointed 1923)

ARTHUR E. J. JOHNSON
City Engineer
Red Oak, Iowa
(Appointed 1924)

AMIEL A. REICHSTEIN
City Engineer
Fairfield, Iowa
(Appointed 1928)

BENTON R. ANDERSON
City Engineer
Clinton, Iowa
(Appointed 1922)

FRED GRIMM
County Engr., Wautoma Co.
Wautoma, Wis.
(Appointed 1912)

J. M. TIPPEE
City Engineer
Des Moines, Iowa
(Appointed 1928)

DON B. RUSSELL
City Engineer
Oskaloosa, Iowa
(Appointed 1923)

PRINCE G. HUSTON
County Engr., Washington Co.
Salem, Ind.
(Appointed 1929)

EARL L. ALEXANDER
County Engr., La Porte Co.
La Porte, Ind.
(Appointed 1924)

3600 B.hp. of McIntosh & Seymour Diesel Engines at Natchez, Miss.

THIS station of the Southwestern Gas & Electric Co. purchased its first two 550-hp. engines (shown in the foreground) in 1924, then more than doubled its capacity by adding a 1250-hp. unit in 1926 and in 1929 made a further increase by adding another 1250-hp. unit.

Large utility companies are exceptionally well engineered and are the country's most critical power producers. Their reputation and business existence depend upon good service and reasonable consumer rates, and their profits to stockholders demand the use of prime movers of high initial and sustained economies.

The more favorable attitude of utility companies toward Diesel engines is therefore a trustworthy guide also to municipalities owning waterworks, lighting and power stations and to industrial power users generally.

Present day fuel and labor costs do not permit the operation and continued use of obsolete or wasteful power equipment. Within a wide capacity range, an OLD Diesel plant will often produce at lower costs than a NEW steam plant, and a good Diesel plant will invariably effect substantial economies over a steam plant that contains old units of low original efficiency or that have deteriorated from natural wear.

Ask our Engineers to submit convincing facts, figures and performance records

McIntosh & Seymour Corporation

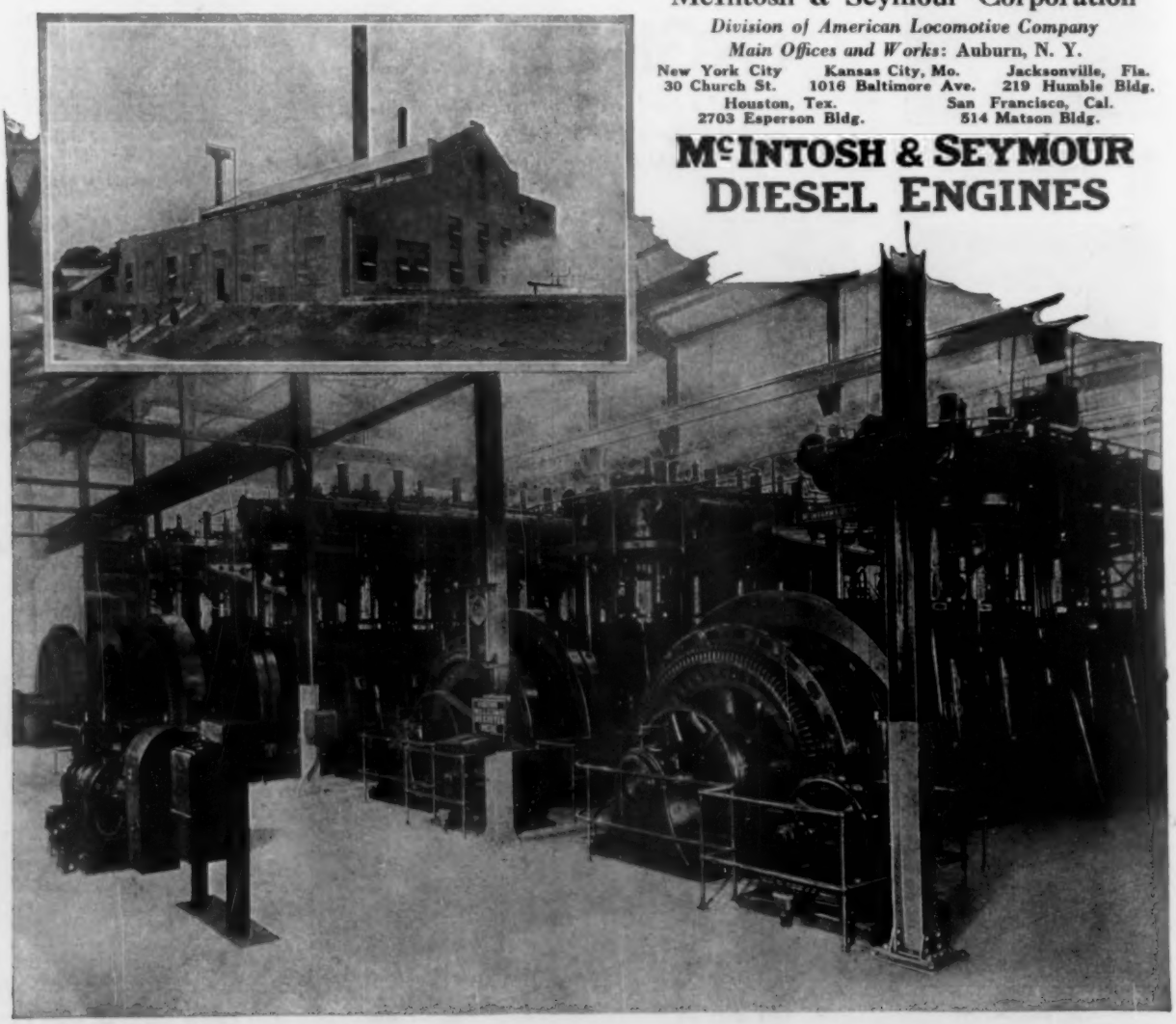
Division of American Locomotive Company

Main Offices and Works: Auburn, N. Y.

New York City, 30 Church St. | Kansas City, Mo., 1016 Baltimore Ave. | Jacksonville, Fla., 219 Humble Bldg.

Houston, Tex., 2703 Esperson Bldg. | San Francisco, Cal., 514 Matson Bldg.

McINTOSH & SEYMOUR DIESEL ENGINES



BEST ADMINISTRATION of PLAYGROUNDS and RECREATION

The Schools the Best Agency

I FAVOR administration of children's playgrounds by the schools for the following reasons, mainly:

1. Schools are located in centers of child population and generally within safe and ready walking distance.

2. Parents are habituated to sending their children to school and more readily consent to after-school play hours; and these are popular with the children themselves.

3. The safety training in our schools increasingly insures caution in going and coming from home to school sessions, and this safety habit carries over normally to transit for play hours as well—an important minimizing of street hazards for large masses of the children.

4. Progressive educators are helping the general public to live up to the conviction that a sound play program is fundamentally a part of true education. Therefore, play under trained leadership is logically a function of educational authorities.

5. The boards of education, especially in the smaller communities, have the best trained leadership available for conducting children's play, as well as the best plant and facilities—if modern standards are met in these respects.

6. Of necessity, play leaders employed by schools must meet the educational standards and automatically insure a high average quality in training and personality for this specialized service, in contrast with practice under other forms of administration where no such standards are legally in force, and where political or personal considerations often determine choice of personnel.

7. By and large, I believe, political interference and maladministration are less operative and more readily remedied in our schools than in our municipal jurisdictions. To that extent, it follows that we may expect a more efficient administration and a better program under school management than under municipal control.

Although there are notable exceptions to be found where other agencies produce the better programs, I believe that, as a rule, the schools have the best facilities, the happiest approach, and the largest opportunity; and ought to be the best agency to administer playgrounds for children. *It is their job.*

C. H. ENGLISH.

Not One, But Several, Problems Involved

PLAYGROUNDS for the school-age child should unquestionably be controlled by the board of education. The school is already touching all the children in the community. It has them organized and classified by age, grade and, in many instances, by physical and mental capacities. The modern program of physical education demands play areas just as a modern course in chemistry or biology demands a laboratory. Physical education no longer confines itself to twenty minutes or an hour a day, but is to be conceived as touching the child's life 365 days of the year. In order to guarantee proper growth and development, a child needs from five to six hours a day of vigorous physical activity—the need probably coming to its peak at about the age of ten. Modern schools are prepared to supply this need, not only on official school days but on Saturdays, holidays and in vacations. Education, "marching off" the field at 3:15, and the municipal playground activities "marching on," sets up a situation of continual *conflict;* conflict in *program,* conflict in *leadership,* conflict in *use of property,* conflict in *legal matters.* The school should supply the space for these playground activities. It should provide the time for teaching activities during the school day and for practising them at other periods. It should classify the children. It should classify the activities, and it is prepared to supply trained leaders. Hence the school becomes the logical agency to organize and administer playgrounds for the school-age child.

This, however, does not represent the total recreational needs of a community. Some agency must help the home to supply play areas for the small child. Some agency must organize the adult recreation, which should include all of the individuals who are beyond the school age. In many communities boards of education lack the vision to properly organize the school child's play. Hence, some agency must supply this need until the boards are ready to act. There is, therefore, a large place in the community for a park and playground department, but its activities should, of course, be closely coordinated with those of the board of education.

JAY B. NASH.

Three National Authorities

were asked for a statement on the best location and administration for the city's playgrounds. These are Jay B. Nash, Professor of Physical Education, New York University; Charles H. English, Executive Secretary, Playgrounds Association of Philadelphia; and Mrs. Eva Whiting White, formerly associated with the Playground and Recreation Association of America, and until recently playground executive of the Boston Community Service. Their expressions of sentiment, as herewith presented, are intended to aid in clarifying opinion on a question on which, as discussions on this page for January and February have shown, there is a wide variety of opinion.

Recreation Commission Should Work with Park and School Authorities

THE question as to whether children's playgrounds ought to be located on school property and administered by school authorities versus city officials is not easily answered in the absolute. It is certain, however, that schools should, whenever possible, be situated in play areas, because of the requirements of the physical education department and also because of the further curricula activities that are more and more being developed in the line of recreation. Further, if the school building is properly designed, it can serve as an indoor recreation center, thus saving the expense of separately constructed field-houses. Moreover, the proper laying-out of the grounds adds to the attractiveness of school property, and the schools gain light and air. Now it is usual when new schools are planned to consider population trends more definitely than is apt to be the case in regard to play spaces developed by park boards. From my point of view, the ideal is to have the school authorities and the park department work in such harmony that, together, they would decide upon the needs of the various sections of the city. The school board would then be responsible for the building and the park department for the grounds.

Neither the park department nor the educational department should be responsible for the activities. There should be a recreation commission as a part of every city government, because it is but natural that the average park department should be more concerned with the upkeep of grounds than with the use of them, and that the school authorities should concentrate on their educational problems, as such, in preference to all-round recreational needs. The ability that makes a park department successful, or an educational system admirable, is not necessarily the same as that which should be found in a department of recreation.

We have not, as yet, begun to demonstrate the total possibilities in the leisure-time program. The recreation leader of the future will be co-equal with the superintendent of schools or park commissioner. He will make his own appeal to the public, in terms of the objectives for which he is responsible. In every forward-looking American community this program will be operated for 365 days in the year. Young and old will be included. The recreation specialist will be increasingly recognized as a foremost civic leader.

EVA WHITING WHITE.

90.6% EFFICIENCY

7000.000 G.P.D.

A WORLD'S RECORD

This announcement is of vital importance to all water works and industrial engineers seeking the most economical pumping methods. This company believes that the new line of Byron Jackson Type "S" horizontally split case centrifugal pumps shows the highest hydraulic efficiency so far attained. The following test results were obtained in the field by the testing engineers of the purchaser who paid a substantial cash bonus for efficiencies actually realized above certain guarantees:

	Head	Overall Efficiency	Pump Efficiency
4 MGD	95 feet	79%	86.8%
7 MGD	120 feet	85.1%	90.6%
9 MGD	330 feet	84.01%	87.6%

The mechanical features of design are covered fully in Bulletin 295, which may be had by writing to our nearest branch office.

SINCE 1872

BYRON JACKSON CO.

Factories: BERKELEY, Los Angeles, Visalia, Calif.

Branches: NEW YORK and CHICAGO

San Francisco, Portland, Salt Lake, Tulsa, Dallas, Phoenix

BYRON JACKSON

CENTRIFUGAL PUMPS FOR EVERY SERVICE

ITEMS and ABSTRACTS on REFUSE COLLECTION AND DISPOSAL

Generating Steam at a Municipal Incinerator

AS a part of the city salvaging operations, waste heat resulting from the burning of garbage and rubbish at the Miami, Fla., municipal incinerator is utilized to produce steam for use in the laundry and kitchen of a municipally-owned hospital.

The steam plant was constructed largely from salvaged and second-hand materials. Although the boiler is an ordinary water tube boiler which was not designed for waste heat utilization and the furnace was not originally built with fuel saving in mind, 1.1 pounds of water are evaporated per pound of fuel as fired.

The main Miami incinerator consists of seven Nye units or 14 furnaces and handles about 61,000 tons of refuse per year. About 500 feet from the incinerator plant is located the Jackson Memorial Hospital, a 300-bed city-owned institution which was originally equipped with an oil-fired steam plant, the cost of oil for which was $10,117 during a 12-month period. It was found that the normal load at the hospital for laundry purposes, for use in the kitchen and for sterilization was 100 horsepower and the pressure required was 100 pounds. A study of the incinerator with a recording pyrometer and a draft gage showed that there was sufficient heat with one unit to provide the required amount of steam.

No appropriation was asked for the installation of the plant, but an arrangement was made with the hospital authorities for diverting a portion of the money normally spent for fuel into the incinerator operating fund, and a temporary loan for construction purposes was secured, the total cost being $7,440.

An old water tube boiler of the requisite size was purchased and dismantled, the tubes and drums sand-blasted and scraped, the pits drilled out, plugged and welded, a few new tubes installed and the whole reassembled. New brick was bought for the setting, and new steel for the breeching, much of the other material being taken from the salvage pile.

The fuel is a mixture of garbage and rubbish, which is fired just as it is received from the households, except that it is picked for salvage, and scrap iron and glass are removed. The fuel is pushed to the furnaces with a bulldozer.

The steam at 100 to 125 pounds is delivered to the hospital through 447 feet of 4-inch line covered with 1-inch magnesia pipe covering. As all the steam delivered to the hospital is used in heating devices such as laundry mangles, cooking apparatus and sterilizers, the condensate is recovered and returned to the boiler. Make-up water is secured from a water-softening plant at the hospital, so that no scale or mud troubles are encountered. The plant has been in successful operation since July 1, 1928. Shut-downs are made each 60 to 80 days for cleaning dust and ashes from the tubes.

WILLIAM SYDOW,
Superintendent, Division of Municipal Wastes.

Over 6,700 Cans of Garbage in Each Collection

ACCORDING to a semi-annual check, the city of Alhambra, Calif., empties approximately 6,771 cans of garbage at each collection. The net expense for collection for the year 1928, taking into consideration the revenue of $5,599.19 derived from the sale of garbage, was $7,967.26, giving the following net costs per can:

Per collection	$0.00959
Per week	0.01918
Per month	0.0831
Per year	0.9973

Garbage is collected twice a week from residences and daily from business places, requiring the services of eight men and two 2½-ton Mack trucks. About 2,460 tons of garbage was collected in 1928, this total being estimated from the weight taken on the public scales for one week at the beginning of each quarter. The garbage is hauled to a pit at the city dump and sold to a rancher for 65 cents a ton.

OTTO N. RUGEN,
Street Superintendent.

Incinerating Costs at Long Branch, N. J.

LONG BRANCH, N. J., has an estimated resident population of 16,000 and a summer population averaging 50,000. This is reflected in the daily average of the garbage and rubbish handled during summer months as compared with the rest of the year in the table below. Collection is by contract in this city, but the Pittsburgh-Des Moines incinerator is owned and operated by the Department of Public Safety. During heavy summer months approximately 48 pounds of coal was used per ton of refuse, 5,100 tons of garbage and 127 tons of rubbish having been handled during the months of June, July, August and September, 1929. The estimated weight of each load of garbage is 4,000 pounds, and of refuse, 400 pounds. The table below gives the weights and costs for 1929:

Month	No. of Loads	Garbage Loads	Garbage Tons	Rubbish Loads	Rubbish Tons	Animals	Tons of Coal Furnace Soft	Tons of Coal Heater Hard	Labor Cost
January	160	91	182	69	14	14	..	2	$405.00
February	177	96	192	81	16	8	..	2	360.00
March	228	125	250	103	20	21	..	..	390.00
April	256	178	246	78	15	66	..	1	380.00
May	295	210	440	85	17	35	..	..	405.00
June	552	430	1,290	122	32	25	6	..	402.00
July	732	605	1,210	147	34	5	57	..	855.55
August	845	703	1,406	142	34	22	58	..	868.50
September	714	597	1,194	117	27	35	1½	..	672.00
October	455	375	750	110	20	26	..	..	414.00
November	427	340	680	87	19	16	..	..	455.95
December	444	341	682	103	20	21	..	..	415.36
Totals	...	...	8,522	...	268	296	122½	..	$6,023.86

The total cost of labor at the incinerator includes the salary of the superintendent at $30 per week. The cost of the coal was $854, making a total of $6,877.86, or 77.5 cents per ton of refuse burned. The labor cost per ton was 50 cents.

CHARLES CARROLL GREEN,
Superintendent.

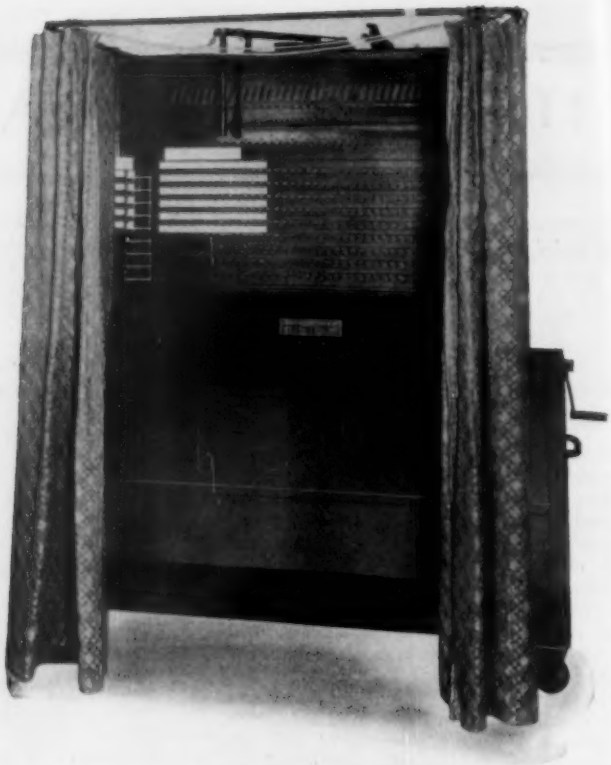
Municipal Incinerator Operated by Contract in San Jose

IN San Jose, Calif., a city of 70,000 population, a private company collects the mixed garbage and refuse and operates the municipal incinerator under contract. This incinerator was built by the city in 1913 at a cost of $33,000, the disposal site costing $5,000. The incinerator is a permanent structure, the kilns being relined every five years. The city operates a free dump for rubbish, which is maintained by a man for the privilege of the junk sales.

During 1928, approximately 13,000 tons of garbage was collected, covering only 60 per cent of the population and 50 per cent of the total 11½-square-mile area of the city. The contractor used eight 3½-ton trucks with 14-yard bins for collection and one Fordson tractor at the disposal plant. During the summer months 90 per cent of the residence district is covered weekly, and the remainder twice a week, and during the winter collections are made weekly. Daily collections are made in the business section. Collection costs for 1928 totaled $52,520, being $40,920 for the payroll of 24 men, $8,800 for maintenance and operating costs, $300 for insurance on 7 men and $2,500 for depreciation reserve and fixed charges.

The incinerator, to which the garbage is delivered after a haul of 2½ miles, handles about 50 tons of mixed garbage and refuse in summer and 30 tons during the winter months. The total disposal cost during 1928 was $7,090, of which $5,040 was spent for payroll, $1,930 for maintenance and repairs and $120 for labor insurance.

W. L. POPP,
City Engineer.



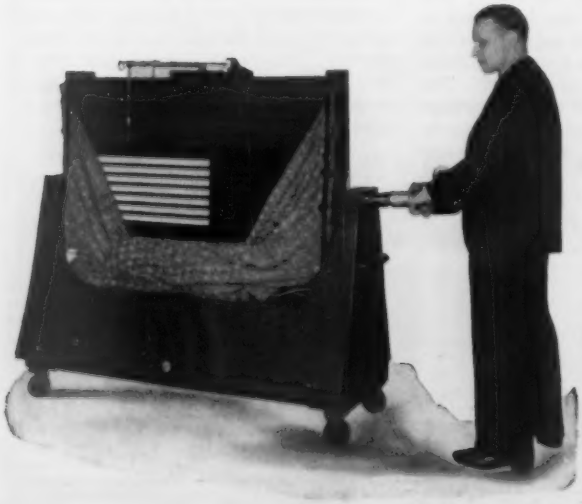
An Improved Base and Worm-gear Hoist Makes The

AUTOMATIC VOTING MACHINE

Capable of Greater Efficiency and Economy

Your community can have this new model Automatic Voting Machine installed for your next election. If you are using one of the older models you can equip it with the new type base and built in hoist at a nominal cost.

AN all metal base and built-in gear hoist make the new and improved Automatic Voting Machine increasingly efficient. The hoist simplifies preparation of the machine for use at election and the base eliminates the necessity of a wooden case for storage between elections. The new base also permits easier handling.



More than two thousand cities and towns have modernized their election methods by substituting the voting machine for the unsatisfactory and inaccurate paper ballot. Through use of voting machines these communities have effected savings to taxpayers that have been sufficient in most cases to pay for the installation of machines, while elections have been speeded up to the satisfaction of officials and public.

An illustrated folder describing the new type Automatic Voting Machine will be sent on request. Address Department A-19.

Automatic VOTING MACHINE CORPORATION
JAMESTOWN ~ NEW YORK

When you write for that catalog, kindly mention THE AMERICAN CITY.

"KEEP YOUR STREETS CLEAN"

ITEMS ON STREET CLEANING AND SNOW REMOVAL

Improvement Association Genuinely Assists Street Cleaning Department

THE Camp Street Improvement Association in New Orleans was formed about four years ago and comprises the owners and tenants of buildings in ten blocks along Camp Street from Canal to Calliope Street. For more than a year the Association continually complained of the need for more thorough cleaning of their street—which is about as far as most associations of this kind ever cooperate with the municipal government.

It was suggested that a white wing or patrolman be assigned to the specific duty of cleaning the street between the limits mentioned. The street width between curbs is 40 feet. The total amount to be patrolled is about 11,000 square yards. The man assigned to this job was actually engaged by the President of the Camp Street Association and, while his daily wages were paid by the city of New Orleans, he has been given a monthly bonus of about $10 paid by the Camp Street Association, the bonus being conditioned upon his doing work satisfactorily. This system has been in force for more than two years, and its efficiency can best be demonstrated with the single statement that Camp Street is the cleanest street in the commercial section of New Orleans. Besides the work of the white wing, however, the street is flushed with a hose every night, followed by a pick-up crew who gather litter during the day In this respect, however, the same work is done at night on all streets in the commercial section. So satisfactory have the results been on Camp Street that the next street to it has formed a similar association, the St. Charles Street Improvement Association, and a white wing is now assigned to that street and is also paid a monthly bonus of $10 by the St. Charles Street Improvement Association.

I do not think that we can hold out a similar inducement in the way of a $10 bonus for every white wing in service in the commercial section, but this scheme certainly has advantages where abutting property owners desire more intensive cleaning than can be afforded from the city budget.

CARL SCHNEIDER,
Aide to Commissioner, Department of Public Property, New Orleans, La.

Minimizing Repairs of Flusher Nozzles

IN Chicago considerable difficulty had been experienced because the pipes supporting flusher nozzles and the nozzles themselves extended beyond the nose of the truck, and most of the flushers carried the nozzle close to the surface of the street. Also, the nozzles on some makes of flushers were carried a considerable distance from the side of the front of the chassis and, as the flushers were operated at night, there were many cases where nozzles or piping were damaged.

Since altering the height of the pipe, as well as the spread between the nozzles, and bringing all the piping to the rear of the nose of the truck, very little trouble has been experienced from broken pipe and twisted nozzles. This has eliminated a great deal of lost time for flusher operators and has improved the performance of this equipment in the district where night flushers are used.

P. C. NILLES,
Superintendent of Equipment.

A Two-Bit Fine Reduces Street Litter

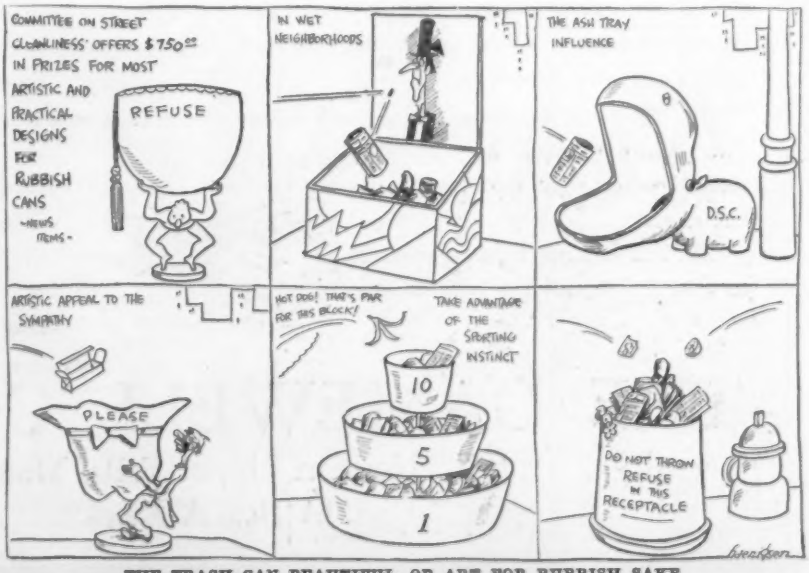
THE prevention of litter through the compulsory cooperation of the public finds its best example in Munich. There, in the course of a year, about 2,000 persons are required to pay one mark each as a reminder of their carelessness in allowing paper or other refuse to fall upon the street. The police officer who detects the offender collects the money and gives a receipt for it, making a record of the circumstances on a stub. He is thus accountable for the money he receives. If a citizen who is called upon to pay, objects to doing so, the case is brought to trial. Then the offender may be called upon to pay a fine of 50 marks or more. The money collected by the police officer is not regarded as a fine, but as a warning. The police seem to make no objections to this popular public service, but look upon it as a part of their duty comparable to the regulation of traffic. The police are state police, and the money which they collect goes to the state treasury.

The Munich system of warnings might well be tried in American cities, but, at the same time, the city should do all it reasonably can to clean the streets. Certainly, it should provide litter baskets or trash cans. It might be desirable to enforce such a law in some parts of the city at least. It is needless to say that in order for an anti-litter law to become effective, the police department and the city magistrates must be cooperative.

—From the report of George A. Soper to the Committee of Twenty on Street and Outdoor Cleanliness, New York.

Prizes for Trash Can Designs

SPECIFICATIONS for entries in the contest, closing May 1, for the "Trash Can Beautiful" were announced recently by Dr. E. H. L. Corwin, Acting Chairman of the Committee of Twenty on Street and Outdoor Cleanliness of the New York Academy of Medicine. These designs must embody substantial, but cheap construction, harmonizing colors and an appropriate slogan. The container must be designed for attachment to a wall or lamppost and must not be set on the ground. It must be easy to paint and to empty and must have a capacity of not less than one cubic foot nor more than two. Its shape must be cylindrical or boxlike. No eccentric forms are allowed and the container must not be made of wood. The prizes are $500 for the best design and $250 for the second best. For details, address the Committee, 2 E. 103rd St., New York.


COMMITTEE ON STREET CLEANLINESS OFFERS $750.00 IN PRIZES FOR MOST ARTISTIC AND PRACTICAL DESIGNS FOR RUBBISH CANS —NEWS ITEMS—
REFUSE
IN WET NEIGHBORHOODS
THE ASH TRAY INFLUENCE
D.S.C.
ARTISTIC APPEAL TO THE SYMPATHY
PLEASE
HOT DOG! THAT'S FAR FOR THIS BLOCK!
TAKE ADVANTAGE OF THE SPORTING INSTINCT
10
5
1
DO NOT THROW REFUSE IN THIS RECEPTACLE
Haenigsen

THE TRASH CAN BEAUTIFUL, OR ART FOR RUBBISH SAKE
A delightful cartoon by Haenigsen, reprinted by courtesy of the New York Evening World

GAMEWELL

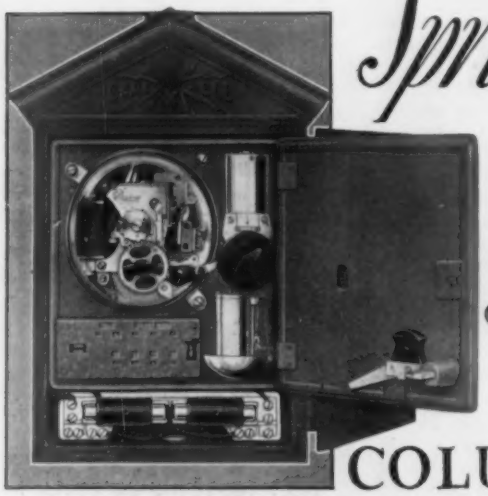
Sprinkler Watchman

PREVENTS

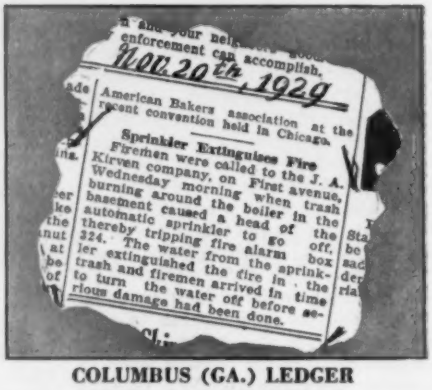
Serious Water Damage

at

COLUMBUS, GEORGIA



"SPRINKLER WATCHMAN"
(Master-Fire Alarm Box)



Nov. 20th, 1929

American Bakers association at the recent convention held in Chicago.

Sprinkler Extinguises Fire

Firemen were called to the J. A. Kirven company, on First avenue, Wednesday morning when trash burning around the boiler in the basement caused a head of the automatic sprinkler to go off, thereby tripping fire alarm box 324. The water from the sprinkler extinguished the fire in the trash and firemen arrived in time to turn the water off before serious damage had been done.

COLUMBUS (GA.) LEDGER
November 20, 1929

Seven Gamewell "*Sprinkler Watchmen*" are in service at Columbus, Georgia; the first one being installed there 8 years ago. According to Mr. T. F. Tillman, Superintendent of Fire Alarm, each of the concerns that installed a "*Sprinkler Watchman*" was allowed a reduction in its insurance rate, dependent upon the class of risk. This rate reduction was possible because of the satisfactory manner in which the "*Sprinkler Watchman*" reduces the fire and water hazard, by automatically transmitting an alarm to the fire department whenever a sprinkler head goes off. Otherwise, it would be necessary to wait until a passerby discovered the fire.

The "*Sprinkler Watchman*" (Gamewell *Master* Fire Alarm Boxes) at Columbus are connected right into the regular box circuits.

The maintenance expense amounts to practically nothing. Mr. Tillman states:

"Each '*Sprinkler Watchman*' should be tested once each month. However, we have not had occasion to do maintenance work on any of the boxes since installation."

Every fire department, equipped with a modern fire alarm system, is in a position to offer this service to the owners of sprinkler protected property. To the business houses and institutions it means a safeguard against fire and water loss. To the municipality it is a safeguard for the city treasury, by preventing losses in taxable property.

Write for descriptive literature on the "*Sprinkler Watchman.*" One of our Sales Engineers will call if you desire.

THE GAMEWELL COMPANY

Newton Upper Falls, Mass.

"A Box A Block"

GRADE CROSSINGS, PLAYGROUNDS

And Other Suggestions for DEPARTMENTS OF PUBLIC SAFETY

The Grade-Crossing Problem Receives Official Consideration

THE gravity of the grade crossing as a traffic hazard is engaging the attention of the national traffic study bodies and traffic experts, many of whom are working, in cooperation and independently, towards effective remedial measures.

The National Conference on Street and Highway Safety will give especial attention to the subject at its third general meeting this spring. In anticipation of this meeting the Conference Committee on Protection of Grade Crossings has made a country-wide survey. This study shows that 58 per cent of all automobile accidents reported in traffic statistics occur at grade crossings and at highway intersections. The number of railway grade-crossing accidents for three years is shown to have averaged 5,700 per year. The number of railway-highway grade crossings protected only by stationary signs is approximately 211,000, while only 28,215 are shown to be protected by gates, watchmen, lights or bells. In the three-year period considered in the survey, 5,853 new grade crossings were opened, compared with 3,749 crossings that were separated or closed—*a net increase of* 2,004.

In its report to the Conference, the Committee will recommend remedies including: better selection and placing of signals, markers, and lights at intersections; restriction on speed when approaching all intersections; and removal of obstructions and obstacles to a clear vision from all approaches to an intersection.

From another official source, namely Interstate Commerce Commissioner Frank McManamy, come suggestions looking towards an improvement of the situation. "Generally speaking," says the Commissioner in an article in the *United States Construction Magazine* (the new supplement issued every other Saturday as a section of *The United States Daily*), issue of February 15, 1930, "it seems to me that some considerable impetus can be given towards a solution, at least to the point where grade-crossing improvements at least keep pace with highway extension, by giving heed to the following suggestions:

"1. That in states where adequate and comprehensive information regarding grade crossings is now available, surveys should be made to the end that the extent and scope of the problem, and the points at which it is most acute, may be known.

"2. That a definite program of elimination and protection of grade crossings in each state should be formulated.

"3. That efforts be made to gain public recognition for the opinion of traffic experts that the only complete and satisfactory solution of the grade-crossing problem at points where heavily traveled highways cross railroads over which frequent or high-speed train movements are made, is the elimination of the grade crossing.

"4. That there should be uniformity in the indication of grade-crossing protective devices throughout the country.

"5. That future traffic conditions be considered and appropriate provisions made for safety in opening all new grade crossings.

"6. That all public and private agencies interested in the problem cooperate in bringing the public realization of the need of a definite program for the elimination and protection of grade crossings, and moreover, as an immediate and partial remedy, that they further cooperate to secure the adoption of educational measures designed to bring about the exercise of greater caution and greater observance of signals at grade crossings."

Toledo Police Department Adopts Radio Broadcasting and Uniform Crime Record System

AS a result of the advocacy of the adoption by police of the installation of radio receiving sets for scout cars, by the Commission of Publicity and Efficiency of the city of Toledo, Ohio, steps are being taken to install a broadcasting station in the Police Department and receiving sets in the scout cars. This recommendation was first made early in 1929 on the basis of Detroit's successful experience with the system. It was later taken up by *The Toledo News Bee* and after inspection trips to Detroit was adopted by the Department. Application has been made to the Radio Commission for a wave length and the broadcasting station will probably be installed in the Police and Fire Alarm Building in process of construction on the civic center.

The uniform crime record system recommended to the Police Department by the Commission of Publicity and Efficiency is also in process of adoption. At the present time the forms recommended by the Committee on Uniform Crime Records are being adapted for the use of the Department. The Ohio Institute has consented to act in an advisory capacity in the installation of the system and it is anticipated that it will be in operation soon.

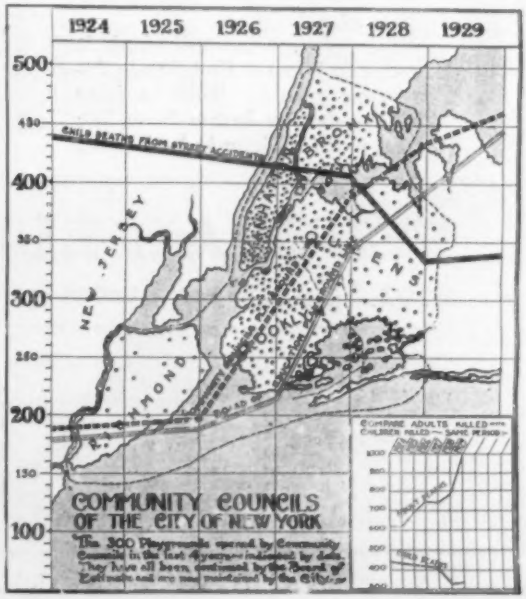
Richard McKey, former superintendent of the Bureau of Identification and Records, is working on the adoption of both of these projects, and, in addition, has finished the compilation of a new police manual, in which connection he has drawn up a plan for a proposed reorganization of the Department. In compiling the manual an attempt has been made to select the best provisions from the manuals of about 25 cities of the country and it is felt that it is somewhat of a model. No revision has been made of the Toledo police manual for over 30 years, and, as a consequence, practice was at wide variance from the rules.

Blazes in Rising Buildings

SKYSCRAPER fires have been increasingly common this past winter in buildings under construction. More and more, the tendency is to push work during the winter. Fires are needed to keep the green concrete from freezing, and the workmen constantly complain about the cold. It is said that practically no larger building goes up in Chicago without several blazes from this cause. The most spectacular fire of this sort was that on the fortieth floor of the new Board of Trade Building in that city. One useful precaution is to require the standpipe to be constructed, floor by floor, with the rising stories. Frequent visitations by members of the fire patrol are also useful.

Formula for Child-Life Saving

FATALITIES to children in motor accidents in cities *can* be consistently lowered. The accompanying chart gives evidence, and one of the means. Briefly, it tells the story of such accidents in New York City, reduced in a six-year period from 432 to 340. The increase of motor-vehicle registration from 421,105 to 736,962 means that the child death figures were, comparatively, but 44.8 per cent in 1929 of those in 1924. Corresponding figures for adult deaths show an increase from 613 to 922. One means of child-life saving, shown by the Community Councils of New York City in its charts, has been the provision of other-than-street play places —a work in which it has been active during the period.



Feet on the floor on the first Blast!

RIGHT out of the Blankets—"Feet on the floor at the first blast!—that's the kind of action we get from our firemen since we installed our Fedelcode," writes one Fire Chief.

Faster turn-out of men and more men at the fire, such is the common experience of cities that have selected the Fedelcode to guard lives and property.

You Hear This Siren

More sound per horsepower, is one outstanding feature of Fedelcode Sirens as proven in competitive tests. Here are the most powerful electric sirens ever built.

Years of siren building experience and development have produced the present vertical type Fedelcode Sirens. Actual user tests under most severe weather conditions prove the Fedelcode to be weatherproof, and operative at all times.

Your city, too, will find it pays to have a Fedelcode Siren on guard. Built in four sizes—let us know how far you want a Siren to be heard. Just address

FEDERAL ELECTRIC COMPANY

8701 South State Street **Chicago, Illinois**

Gentlemen:

We would like our Siren to be heard.....miles. The current supply is.....volts.....phase .....cycle.

Name .....

City .....State .....
A.C.

W. C. HART
Police Chief, New Britain Conn.
(Appointed 1922)

WARREN BURCH
Police Chief, Mobile, Ala.
(Appointed 1924)

LAWRENCE T. ROBEY
Police Chief, El Paso, Texas
(Appointed 1928)

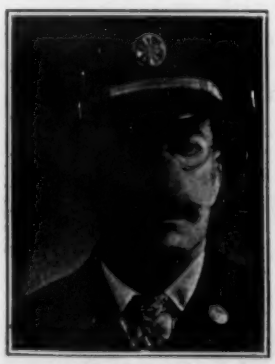
CALVIN M. JOHNSON
Fire Chief, Knoxville, Tenn.
(Appointed 1929)

A. B. HORNY
Fire Chief, High Point, N. C.
(Appointed 1901)

WHO'S WHO IN PUBLIC SAFETY

The 28th of a Series of Portraits of Fire and Police Chiefs Which Has Appeared Monthly Since January, 1928

J. J. MAHONEY
Police Chief, Ansonia, Conn.
(Appointed 1929)



HARRY E. COLBY
Fire Chief, Franklin, N. H.
(Appointed 1908)

CHARLES A. ANDERSON
Police Chief, Middletown, Conn.
(Appointed 1923)

WILLIAM R. ZENT
Police Chief, San Angelo, Texas
(Appointed 1929)

GEORGE W. TAYLOR
Police Chief, Litchfield, Ill.
(Appointed 1925)

JOHN F. MAHONEY
Police Chief, St. Albans, Vt.
(Appointed 1903)

J. B. SCHWEGLER
City Marshal, Minden, Iowa
(Appointed 1915)

WILLIE McGILVRAY
Police Chief, Eufaula, Ala.
(Appointed 1927)

HENRY J. WILLIAMS
Fire Chief, Macon, Ga.
(Appointed 1927)

Public School Business Officials

An analysis of appraisals made by The Lloyd-Thomas Co. of one hundred and six school properties disclosed:

Insurance carried on 81.3% of the properties, was improperly distributed.

Of this, one-third was actually wasted insurance because it was not properly distributed.

Not a single piece of property even approximated the correct amount of insurance.

Not one was over-insured.

Under coinsurance approximately 39% of the schools showed a saving over and above the cost of insurance premiums with greater coverage.

The cost of appraising the property was absorbed in periods of four to six years.

Approximately 33% of the schools preferred not to carry coinsurance or were prevented by some statute provision.

The problem of protecting school properties by insurance is in reality a fairly easy one to solve. The agencies to make this protection ample at fair cost already exist. These facilities are at the disposal of every school board and should be taken advantage of before the loss occurs which brings added burden to the community.

A request to any of our offices will bring to your desk complete literature—or a representative will call—without obligation.

The Lloyd-Thomas Co.

RECOGNIZED AUTHORITIES ON VALUATIONS

EXECUTIVE OFFICES

CHICAGO
4411 Ravenswood Ave.

NEW YORK
220 Broadway

BRANCH OFFICES

CLEVELAND
PITTSBURGH
CINCINNATI
DETROIT
INDIANAPOLIS
HENDERSONVILLE, N. C.
OMAHA
DENVER
LOS ANGELES
MILWAUKEE
MINNEAPOLIS
CHARLOTTE, N. C.
DES MOINES
ST. LOUIS
MEMPHIS
ATLANTA
BIRMINGHAM
DALLAS
SANFORD, FLA.

CATALOGS WILL HELP YOU

THE AMERICAN CITY should always be mentioned when writing for this material which is furnished free.

Keep your files up to date by checking over these items each month and writing for those you need.

FIRE-HYDRANTS AND VALVES

The Columbian line, which includes the Columbian fire-hydrant, which has few working parts, all interchangeable, and a simple automatic drain, the fully bronze-mounted Columbian valve, the ruggedly constructed valve box, extra-heavy for roadway service, and Columbian sluice-gates, meter-boxes and municipal castings, are made by the Columbian Iron Works, Chattanooga, Tenn., which will send complete data on request..

GRASS-CUTTING EQUIPMENT

Illustrated literature on Ideal power mowers for every grass-cutting need, from the one-acre plot up to the park or other area of 15 acres, can be secured without obligation from the Ideal Power Lawn Mower Co., 400 Kalamazoo St., Lansing, Mich.

WATER PURIFICATION

Complete information and prices on International water purification plants for municipalities may be secured on request from the International Filter Co., 332 W. 25th Pl., Chicago, Ill.

PARK AND CITY PLANTING

The catalog of Naperville Nurseries, Box A, State Route 18, Naperville, DuPage County, Ill., describes this company's complete assortment of nursery stock, including ornamental trees, shrubs, evergreens, vines and perennials for park, playground, cemetery, subdivision, street improvement and forestry planting.

SAND MOLDED IRON PIPE

The McWane Cast Iron Pipe Co., Birmingham, Ala., and the Pacific States Cast Iron Pipe Co., Provo, Utah, will be pleased to send their illustrated literature describing McWane cast iron pipe, which is furnished either with or without precalked joints.

FIRE-HYDRANTS

A complete description of Mathews fire-hydrants, which can be replaced in a few minutes without excavating, have few parts and are frost-proof, is available on request from R. D. Wood & Co., Philadelphia, Pa.

PUBLIC ADDRESS SYSTEMS

Western Electric public address and music reproduction systems are distributed by the Graybar Electric Co., Graybar Bldg., New York, which will send complete information to interested city officials on request.

PIPE AND CASTINGS

The Warren Foundry & Pipe Co., Bowling Green Bldg., New York and 201 Devonshire St., Boston, Mass., will gladly send information regarding cast iron pipe and special castings in sizes from 2 to 60 inches.

TAR AND ASPHALT KETTLES

The Blue Book of Connery & Co., Inc., 4000 N. Second St., Philadelphia, Pa., illustrates and describes this company's complete line of tar and asphalt kettles, oil-burning kettles, pouring pots, torches, hand spraying attachments, etc.

TRACTORS FOR CITY SERVICE

The Caterpillar Tractor Co., Peoria, Ill., and San Leandro, Calif., will gladly send information and prices on Caterpillars which may be used in many ways in city service, such as building and maintaining airports, preparing municipal golf courses, smoothing bumpy streets and clearing away drifted snow.

TANKS, TOWERS AND MUNICIPAL CASTINGS

J. S. Schofield's Sons Co., Macon, Ga., manufacturers of water-tanks, towers, standpipes, sewer castings, anti-rattle manhole covers and rings, meter boxes, park benches, white-way lamp-posts, boilers, engines and plate, sheet and structural work of all kinds, will be pleased to send a copy of its illustrated catalog on request.

MUNICIPAL GARBAGE INCINERATION

The Pittsburgh-Des Moines Steel Co., 81 Neville Island, Pittsburgh, Pa., has issued a new 24-page booklet, No. 79, containing data and information on municipal garbage disposal by incineration, which will be mailed on request to interested municipal officials.

BRIDGE WARNING LIGHTS

Descriptive literature on Horni Bridge warning lights, as well as on this company's complete line of traffic signals, street directional signs, fire-alarm and police-call systems, will be sent without obligation by the Horni Signal Mfg. Corp., 515 Greenwich St., New York.

CENTRIFUGALS FOR EVERY SERVICE

The Byron Jackson Pump Co., Berkeley, Los Angeles and Visalia, Calif., will be pleased to send complete data and prices on Byron Jackson centrifugal pumps for every service where continuous operation is imperative.

FILTERS FOR WATER-WORKS

City officials interested in the filtration of municipal water-supply systems and recirculation systems for outdoor and indoor swimming pools should write for information to the Roberts Filter Mfg. Co., 602 Columbia Ave., Darby, Pa.

TORCHES FOR WARNING BEACONS

Complete data on Toledo torches for use by state and county highway departments and municipal street departments as warning beacons on construction work, may be secured on request from the Toledo Pressed Steel Co., Toledo, Ohio.

VITRIFIED BRICK PAVEMENTS

For full information regarding vitrified brick pavement construction for cities, municipal officials should write to the National Paving Brick Mfrs. Assn., 1245 National Press Bldg., Washington, D. C.

AIR AND TRAFFIC SIGNALS

The American Gas Accumulator Co., Elizabeth, N. J., manufacturers of reflector signs and signals, flashing beacons, airport lighting equipment, marine signals and traffic control signals, will gladly send complete descriptions of any of its equipment to interested city officials on request.

CHLORINATORS FOR WATER AND SEWAGE

Memo M-23 of the Paradon Mfg. Co., Arlington, N. J., tells all about Paradon chlorinators, which are available for many new uses in the field of water purification and sanitation, such as odor control, biological oxygen demand control, trade waste purification, water-main sterilization, algae control, prechlorination, chlorinated copperas application or slime removal in condenser water, in the water-works field.

A BOOKLET ON DITCHING

City officials interested in ditching for pipe lines, etc., should secure a copy of "Ditching Snapshots and Records" from the Barber-Greene Co., 515 W. Park Ave., Aurora, Ill., manufacturers of Barber-Greene ditchers.

FIRE-FIGHTING APPARATUS

Complete information regarding Ahrens-Fox dependable fire-fighting apparatus for municipalities, may be secured without obligation from the Ahrens-Fox Fire Engine Co., Colerain Ave., Alfred and Cook Sts., Cincinnati, Ohio.

DIESELS FOR POWER

The Fulton Iron Works Co., St. Louis, Mo., will gladly analyze your power requirements and make recommendations for power for public utilities, municipal plants, water-works or oil pumping stations, without obligation and will send complete data on request.

FIRE-HYDRANTS

Vogt Bros. Mfg. Co., Inc., Louisville, Ky., manufacture a Traffic Model fire-hydrant which requires no digging and no replacing of large expensive parts if broken by traffic smash-ups, and on which they will be pleased to send details and prices.

A NEW ASPHALT EMULSION

Literature describing Bitumuls, a pure bitumen emulsion having the color of chocolate and the consistency of coffee, which is used cold and on application breaks down in a few minutes, forming a uniform black coating of the same sticky asphalt that was emulsified, may be secured from the American Bitumuls Co., 503 Market St., San Francisco, Calif.

EXPANSION JOINTS FOR CONCRETE HIGHWAYS

Colphalt Co. of Ohio, Western Reserve Bldg., Cleveland, Ohio, will be glad to send to those interested literature describing the Corkin asphaltic expansion joints, which are made to conform to state, county and city specifications in thicknesses of ¾-, ⅞-, ½-, ⅝-, ¾-, ⅞-, and 1 inch; and widths of from 4 to 12 inches.

NEW FRACTIONAL HORSEPOWER GAS ENGINE

A new fractional horepower gasoline engine, known as the Cushman Husky, designed for general purpose service and suitable for driving lawn-mowers, pumps or electric lighting plants, is described in literature which may be secured from the Cushman Motor Works, Lincoln, Nebr.

VEHICLE-ACTUATED TRAFFIC CONTROL

The Automatic Signal Corp., New Haven, Conn., has just issued two new catalogs, "The A B C of Electro-Matic Vehicle-Actuated Traffic Dispatching Systems" and "The Story of Electro-Matic and Traff-O-Matic," either or both of which it will be pleased to send upon request.

CENTRIFUGAL PUMPS

The Quimby Pump Co., Inc., 340 Thomas St., Newark, N. J., has issued an interesting illustrated 16-page booklet, file 29D5, describing Quimby centrifugal pumps, vertical sump pumps, sewage ejectors and solid and split case pumps, copies of which it will be pleased to send to interested municipal officials.

A PLANTING GUIDE

Kelsey Nursery Service, 50 Church St., New York, will gladly send a copy of its short guide to the best varieties of evergreens, shade trees, shrubs, forestry seedlings, transplants, etc., with special quantity prices applying for the spring of 1930, to park and other municipal officials.

A SANITARY REFUSE COLLECTOR

A new booklet describing the Colecto ash, garbage and refuse collector, which is efficient, economical and sanitary, has been issued by B. Nicoll & Co., Inc., 292 Madison Ave., New York.

ENGINE FOR PUMPING AND LIGHTING

Complete information regarding the new 6-cylinder engines of from 160 to 180 horsepower, which are designed for use with natural, artificial or casing head gas and which can be used for small municipal lighting and pumping installations, may be secured from the Waukesha Motor Co., Waukesha, Wis.

PLAYGROUND AND WATER APPARATUS

Catalog No. 22 of the EverWear Mfg. Co., Springfield, Ohio, describes in detail the complete line of EverWear playground and water apparatus and shows four layouts for playgrounds of different sizes.

OUTDOOR DRINKING FOUNTAINS

The Murdock Mfg. & Supply Co., 426 Plum St., Cincinnati, Ohio, has issued a booklet, "A Remarkable Outdoor Drinking Fountain," describing the Murdock outdoor bubble font for use in schoolyards, playgrounds and parks.

LONG-WEARING PAVEMENTS

Complete information regarding Warrenite-Bitulithic pavements for city streets and highways may be secured on request from Warren Bros. Co., Boston, Mass.

POOL AND BEACH EQUIPMENT

This is the title of Water Sports Catalog No. 2, recently issued by the American Playground Device Co., Anderson, Ind., and describing the company's line of slides, spring boards, diving towers, the Hunter water top, the Water Whip, floats and other pieces of equipment necessary to well-regulated swimming pools and beaches.

IN THE HOLLOW OF HIS HANDS

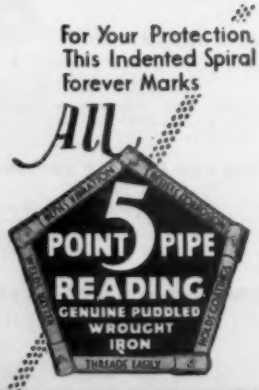
Time—That Tough Old Tester—takes into his hands the materials that go into every building, from factory to skyscraper, and begins his work of destruction long before the structures are completed.

Nor do the attacks of Time, and all his destructive forces, ever let up for a moment until those buildings are crumbled ruins or torn down to make way for the new.

In order to equip any building to withstand the attacks of Time to the utmost—to secure from pipe repairs wherever pipe is used—specify Reading 5-Point throughout.

Use only Reading 5-Point Nipples with Reading 5-Point Pipe—you'll know them by the indented spiral band

For Your Protection This Indented Spiral Forever Marks



For Reading 5-Point Pipe is made of Genuine Puddled Wrought Iron that has stood the tests of Time—That Tough Old Tester—as has no other pipe material. And the tests of Time are the only conclusive tests of the length of life of pipe materials that man has ever found.

READING IRON COMPANY, Reading, Pennsylvania

GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM ⅛ TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron

TANKS AND TOWERS FOR WATER STORAGE

Complete data on Horton elevated tanks, storage tanks, standpipes, cylindrical tanks, Hortonspheres, smokestacks and other steel plate work, may be secured on request from the Chicago Bridge & Iron Works, 2127 Old Colony Bldg., Chicago, Ill.

A SOLID RUBBER TIRE WITH CLEATS

The Wehr Co., Milwaukee, Wis., will be pleased to send its literature describing the Wehr all-purpose wheel, which is a dual wheel with solid rubber tires between which are ten cleats which may be lifted out to rest across the two tires and provide ten grousers on each wheel.

EXPEDITING TRAFFIC

The Tokheim Chronoplan system of traffic control, which permits the continuous, orderly movement of traffic on all streets when the motorist travels at the maximum allowable speed, is described in Bulletin 2000 of the Tokheim Oil Tank & Pump Co., Fort Wayne, Ind.

TRUCK HOISTS AND BODIES

City officials interested in the use of Wood hoists and bodies for garbage collection and other municipal haulage activities, should secure a copy of Catalog 10 of the Wood Hydraulic Hoist & Body Co., Detroit, Mich.

CHEMICALS FOR WATER-WORKS

Complete data and prices on soda ash, liquid chlorine and other water-works chemicals may be secured on request from the Mathieson Alkali Works, Inc., 250 Park Ave., New York.

PROTECTION FOR CONCRETE ROADS

Quotations and information on Truscon Air-Cushion expansion joints, dowel contraction joints and curb bars which are easily installed, economically priced and ready for immediate delivery, may be secured on request from the Truscon Steel Co., Youngstown, Ohio.

TREES FOR CITY PLANTIING

The wholesale catalog of Thomas B. Meehan Co., Inc., Dresher, Pa., describes this company's stock of shade trees for city planting, including Norway maples and Oriental planes, as well as ornamental trees and shrubs.

SELF-OILING, WEATHERPROOF TURBINES

Bulletin 30 of A. D. Cook, Inc., Lawrenceburg, Ind., describes in detail Cook deep-well, self-oiling, weatherproof turbine pumps, which are compact, sturdy, efficient and adaptable for municipal service.

WARNING LIGHTS FOR ROAD WORK

Complete information regarding the Little Wizard cold blast lantern, which has an extra-big light for use as a warning light for roadside use, affording dependable protection at low cost, may be secured without obligation from R. E. Dietz Co., 60 Laight St., New York.

ORNAMENTAL TREES AND PERENNIALS

For a price list on a complete stock of ornamental trees shrubs and hardy perennials for municipal planting, city officials should address Henry Kohankie & Son, Painesville, Ohio.

SIMPLE, POSITIVE WATER METERS

The Neptune Meter Co., Thomson Meter Corp., 50 E. 42nd St., New York, will gladly send complete data on Trident and Lambert meters, which are simple and positive in action, and sensitive, which have no complicated parts, and through which water cannot pass without registration.

LETTERING GUIDES

A copy of Wrico Catalog No. 7, describing Wrico lettering guides in new styles and new sizes for lettering maps, charts, bulletins, posters, drawings, signs and show cards, will be sent on request by the Wood-Regan Instrument Co., South Orange, N. J.

VENTURI TYPE METERS

Bulletin E-1 of the Simplex Valve & Meter Co., 6743 Upland St., Philadelphia, Pa., describes Simplex venturi type meters, which are accurate, reliable, simple, and easy to check and adjust.

PIPE OF UNIFORM THICKNESS

Complete information regarding deLavaud pipe, which is made by pouring molten iron into a rapidly revolving cylindrical metal mold and then annealing it in an oven where the temperatures are accurately controlled, will be sent on request by the United States Pipe & Foundry Co., Burlington, N. J.

BENCHES AND SWINGS

Catalogs and prices of the Millersville Supply Co., Millersville, Pa., on Bausman benches and swings for placing at frequent intervals along golf courses and around tennis courts and playgrounds, are available to municipal officials on request.

STATION-HOUSE AND LOCK-UP CELLS

The Pauly Jail Building Co., St. Louis, Mo., will be pleased to send its literature covering station-house and lock-up cells and accessories to interested city, town and village officials on request.

A TWIN-DUAL ROAD MAINTAINER

A folder describing the Success twin-dual road maintainer, which is simple to operate, has multiple blades and light draft and is adjustable to any road, being recommended for surface maintenance, light grading construction, building and maintenance of shoulders or berms, and cutting out vegetation, may be secured from the Shunk Mfg. Co., P. O. Box 37, Bucyrus, Ohio.

IMPROVED SNOW-PLOW

The Baker Mfg. Co., Springfield, Ill., will be pleased to send complete information regarding the recent improvements in the No. 30-A Baker snow-plow for the Caterpillar Thirty.

NEW ROAD ROLLER CATALOG

A new 30-page catalog illustrating in colors Buffalo-Springfield motor rollers of all sizes and their use for all kinds of paving work, has recently been issued by the Buffalo-Springfield Roller Co., Springfield, Ohio, which will gladly send copies on request.

LAWN-MOWERS

The Pennsylvania Lawn Mower Works, Inc., Philadelphia, Pa., has recently issued an attractive 24-page catalog illustrating its complete line of lawn-mowers, cleaners and grass catchers, with specifications and prices.

FUN FOR MANY CHILDREN

City officials interested in playground apparatus which gives a large number of children fun and exercise at one time when installed in a public playground or school yard, should secure the catalog of the Playground Equipment Co., 68 Duane St., New York, describing the Junglegym.

METERS FOR HARD WATER

The Buffalo Meter Co., 2902 Main St., Buffalo, N. Y., makes the Niagara water meter, especially designed for hard-water use. Niagara water meters in service over 30 years measuring hard well-water are still giving accurate and reliable service. Complete information and prices sent on request.

INCINERATING CITY WASTES

The Industrial Incinerator Engineering Co., 15 Lewis St., Hartford, Conn., New England licensees for the Balmer system of incineration of city wastes, will be pleased to send a copy of its 18-page illustrated booklet completely describing the Balmer system, to any municipal or civic officials interested in improved refuse disposal in the New England States.

BLACK-AND-WHITE PRINTS FROM TRACINGS

The literature of Charles Bruning Co., Inc., 102 Reade St., New York, describes the BW direct printing process for making black-and-white positive prints direct from tracings without the use of negatives or ammonia fumes.

INCINERATION OF MUNICIPAL REFUSE

The booklet, "Disposal of Municipal Refuse by Incineration," issued by the Morse Boulger Destructor Co., 205 E. 42nd St., New York, is a very complete discussion of the production, collection and incineration of refuse in American communities.

DISC WATER METERS

Circular No. 204 of the National Meter Co., 299 Broadway, New York, describes the Nash disc meter, which is of all-bronze construction with conical disc, strong, dependable intermediate gear train and cheap and handy frost protection.

MUNICIPAL SIGNS AND SIGNALS

Alumoyd street signs, which are ornamental and distinctive, including the new Alumoyd de luxe street marker, are manufactured by the Alumoyd Sign & Signal Co., 255-59 E. 95th St., Chicago, Ill., from which complete information and prices may be secured on request.

WATER METERS

Complete data and prices on Watch Dog water meters, which are dependable in service, will gladly be sent on request by the Gamon Meter Co., Newark, N. Y.

POLICE MOTORCYCLES

For information regarding efficient and economical motorcycle equipment for municipal police departments, city officials should secure information and prices from the Indian Motocycle Co., Springfield, Mass.

FINE SEWAGE SCREENS

The Shevlin disc fine screens for sewage are made by the Shevlin Engineering Co., Inc., 229 Fulton St., New York, from which complete information and prices may be secured without obligation on request.

AN ALL-STEEL ROAD ROLLER

Literature describing the Hercules 10 to 12-ton road roller, which is of all-steel construction, has three speeds forward and reverse and two sets of brakes which dispense with the necessity of blocking the roller on hills, as well as facilitating the stopping and reversing required by road work, may be secured from the Hercules Co., subsidiary of the Osgood Co., Marion, Ohio.

A TRAFFIC HAND BOOK

The K. E. Erickson Co., Inc., Portland, Ore., has just published an interesting pocket-size Traffic Hand Book, describing Erickson traffic guides, HiWay line markers, traffic signs and zone and line painters, copies of which will be sent on request.

POCKET-SIZE PUMP CATALOG

The Chicago Pump Co., 2336 Wolfram St., Chicago, Ill., will be pleased to send to municipal officials a copy of its Pump Guide No. 12, an easy-to-handle, efficient, condensed pocket-size catalog on pumps, showing what pumps are used for different services and giving engineering data on each pump, as well as a section devoted to information useful in figuring pumps.

STREET DIRECTION SIGNS

City officials interested in providing visible, long-lived street name signs for their cities, should secure data from the A. D. Joslin Mfg. Co., Manistee, Mich., on the signs made by this company of aluminum, duralumin and Toncan copper molybdenum iron Duco finished and with embossed aluminum letters.

TREES—SHRUBS—EVERGREENS

A copy of the new Planting Guide and special prices on trees, shrubs and evergreens for park and cemetery superintendents and other buyers for civic plantings, will be sent on request by the Pontiac Nurseries, Romeo, Mich.

PLAYGROUND EQUIPMENT

A free illustrated catalog is available on request from the Mitchell Mfg. Co., 1301 29th Ave., Milwaukee, Wis., describing Mitchell playground equipment, including the Mitchell Whirl, on which one child or fifty children at a time can ride.

VALVES AND FIRE-HYDRANTS

The Rensselaer Valve Co., Troy, N. Y., has just published the first edition of its Catalog G describing Rensselaer valves and Corey fire-hydrants and their appurtenances. Copies of this 216-page, well-illustrated booklet will be sent on request to interested water department officials.

JAILS AND PRISONS

Catalog 27 of the Southern Prison Co., San Antonio, Texas, copies of which will be sent by this company on request, illustrates typical jail and prison buildings equipped with hardened steel cells, selective locking devices, ventilated sanitary systems, and other modern prison equipment.

VALVES, PIPE FITTINGS AND FIRE-HYDRANTS

The Kennedy Valve Mfg. Co., Elmira, N. Y., manufacturers of gate, globe, angle and check valves in a wide range of sizes, as well as water-gates and fire-hydrants and post indicators, will be pleased to send information on any of its products on request.

ROAD MAINTENANCE WITH SCRAPERS

Complete information regarding the Root Giant hydraulic reversible spring scrapers for maintaining earth, gravel or cinder highways, may be secured on request from the Root Spring Scraper Co., Kalamazoo, Mich.

DRY BASIN SEWAGE EJECTORS

For handling raw sewage without screens or strainers in municipal and other large sewage disposal plants, the Weil Pump Co., 315 W. Superior St., Chicago, Ill., has developed the Weil Type MCN non-clog dry basin type sewage ejector, full description of which may be secured on request.

NEW SEWER AND CONDUIT RODS

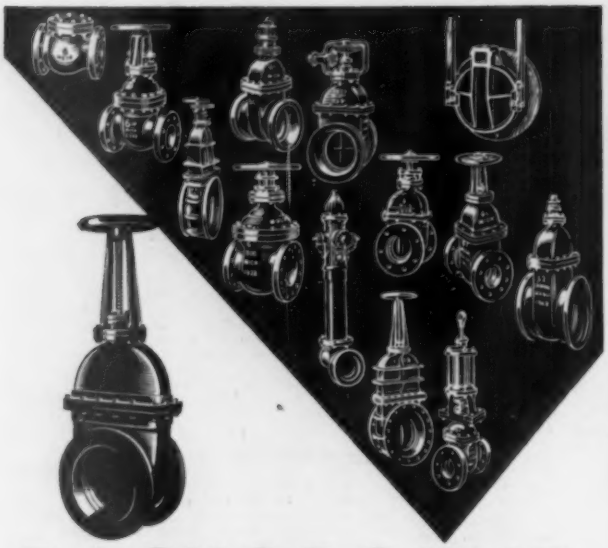
A new type of sewer and conduit rod with a new coupling that hooks at a 120-degree angle and is locked at 118 degrees, has been brought out by the Turbine Sewer Machine Co., 5210 State St., Milwaukee, Wis., from which complete data may be secured.

HIGHWAY EQUIPMENT

Road grader blades, road planetainers, rotary scrapers, road plows, concrete carts, wheelbarrows, drag and fresno scrapers and backfillers made by the General Wheelbarrow Co., Cleveland, Ohio, are described in a small folder which will be sent on request to interested street and highway officials.

WATER-POLISHED LIGHTING STANDARDS

Data and prices on the new water-polished granite concrete street-lighting standards developed by the American Concrete Marbelite Co., 232 E. Erie St., Chicago, Ill., may be secured on request without obligation from this company.



BACKGROUND

NINE years before the Civil War a small foundry in Detroit with only a handful of men and a meagre supply of crude equipment started to build a reputation.

For 78 years this organization has furnished industry and public works projects with Michigan Products. It has grown steadily with the market it serves—grown because of a consistent policy of cooperation with this market.

Today the Michigan Valve & Foundry Company, one of the world's largest manufacturers of water works and sewerage equipment, is still growing.

The capacity and experience of these 78 years of successful operation is reflected in the quality of Michigan Valves, Hydrants and Sluice Gates, and in the value of the technical advice offered in the use of such equipment.

Michigan engineers are at your service.

MICHIGAN VALVE & FOUNDRY CO.
DETROIT

CHASE

Brass *and* Copper

Immediate delivery from
18 convenient warehouses

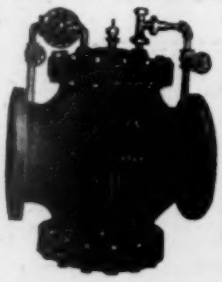
CHASE BRASS & COPPER CO.—Incorporated—
Waterbury, Conn.

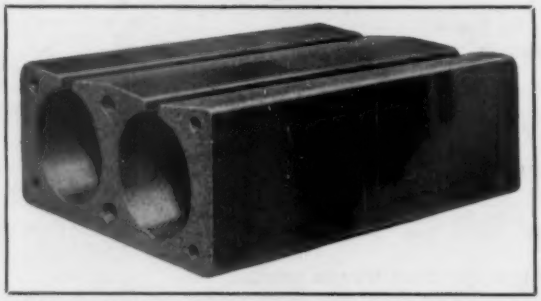
THE STANDARD FOR 50 YEARS

Automatic Pressure Control Valves
Feed Water Filters Portable Fire Hydrants
Hydraulic Engines Hydraulic Booster Pumps

ROSS VALVE MFG. CO., INC.

ARCHIBALD STREET TROY N. Y.





SINGLE-UNIT, GLAZED, VITRIFIED BLOCKS FOR AERATION & DRAINAGE OF TRICKLING FILTERS

Write for information and prices

WM. E. DEE COMPANY, 1233 Wabash Ave., Chicago, Ill.

Patent Applied for

COOK

Deep-Well Turbine
SELF-OILING—WEATHERPROOF

This is the Pump YOU have been hoping for—

Fool-proof — Trouble-proof
Compact
Sturdy
Efficient
Adaptable

Bulletin 36

A. D. COOK, INC.
Lawrenceburg Indiana

NEW STANDARD REFERENCE BOOK of the WATERWORKS FIELD

IT will find its prominent and permanent place on the desk or bookshelf of every waterworks official of importance in the United States and Canada and will be consulted whenever the problems of new waterworks construction, maintenance or improvements come up.

NEW A. P. SMITH VOLUME JUST OFF THE PRESSES

It has 272 pages, is profusely and carefully illustrated, and is bound in gold-stamped, limp leatherette, an important waterworks volume on important waterworks subjects.

Completely covers the following subjects:

- Tapping Connections
- Water-Main Valve Insertions
- The Valve for the Place and the Use
- Selecting the Right Hydrant
- Cutting Pipe
- Repairs with Sleeves
- Corporation Tapping and Supplies
- Water Meters for Every Requirement
- Lead-Flanging
- Indicator Posts
- Valve Boxes
- Helpful Waterworks Information

We will be glad to place a copy of this book, which has been two years in preparation, in the hands of all waterworks men who should have it.

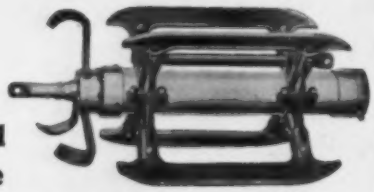
It has already been mailed to the large number of the latter who are on our regular mailing lists.

We would welcome the requests of others who desire it for a permanent place among their consulting books. In doing this, they will please be sure to use their business letterhead and to plainly state their waterworks connections.

Address Department AC.

SMITH
WATER WORKS SPECIALTIES & SUPPLIES
THE A.P.SMITH MFG.CO. *East Orange, N.J.*

During April we hope you will remember to mention THE AMERICAN CITY.

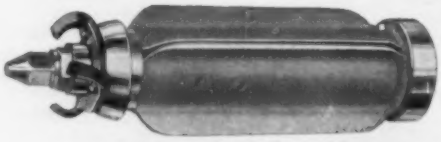


Standard Turbine Adjustable to clean sewers from 6 inch to 30 inch

Our standard turbine illustrated above is operated by water pressure and is pulled through the sewer with our specially designed windlass.

The turbine head, in which three knives are fastened, revolves at 600 r.p.m. at 60 pounds pressure, and develops 3 hp. at the cutting knives.

The knives have a helical cut and clean top, bottom and sides of the sewer in one operation. The same water used to propel the knives serves to clean and scour the sewer at the point where the knives are cutting.



THIS IS THE SELF-PROPELLING FERRET TURBINE—used to great advantage for cleaning dead ends, catch basins to manholes, and all stoppages within several hundred feet from the manhole. Sold on 30-day free trial.

Adjustable Turbine Sewer Cleaners
Drag Type Sewer Cleaners
Self-Propelling Ferret Turbines
Windlasses
Sewer Braces (Cable Guides)
Sewer Cables
Conduit Rods
Five Types of Sewer Rods

Send for catalog and prices

The

TURBINE SEWER MACHINE CO., INC.

Makers All Types Sewer Cleaning Equipment

5210 State Street

MILWAUKEE WISC.

VOGT BROTHERS ★ TRAFFIC MODEL ★ FIRE HYDRANT

"Traffic Smash-ups"

—Solved—

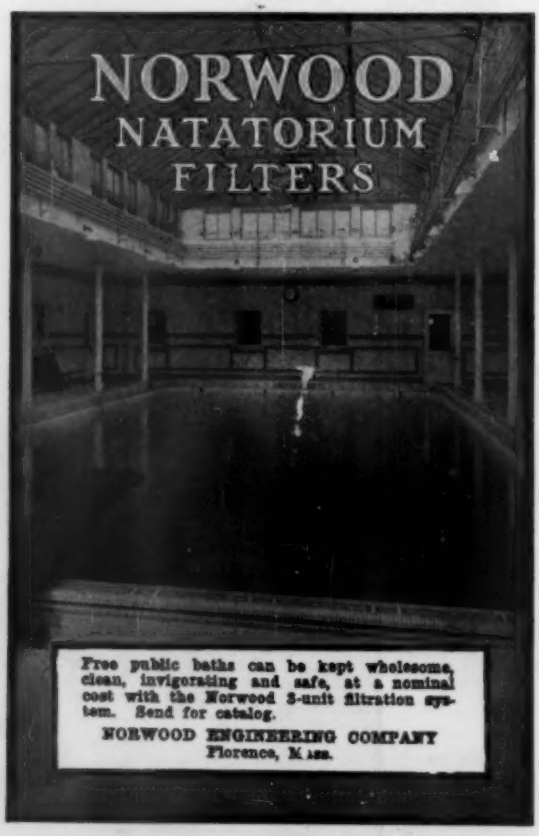
By this hydrant—

Back on the job—quicker — easier —

No digging—No replacing of large, expensive parts—

Details?—Yours for the asking

VOGT BROTHERS MFG. CO.
INCORPORATED
LOUISVILLE · · KENTUCKY


NORWOOD
NATATORIUM
FILTERS
Free public baths can be kept wholesome, clean, invigorating and safe, at a nominal cost with the Norwood 3-unit filtration system. Send for catalog.
NORWOOD ENGINEERING COMPANY
Florence, Mass.

APRIL, 1930
Vol. XLII No. 4

The American City

443 Fourth Avenue
New York
50 Cents, $4 a Year

The Bronx-Hutchinson-South Yonkers Joint Sewage Treatment Plant at Yonkers, N. Y.

By GEORGE A. SHERRON
OFFICE OF W. W. YOUNG, CONSULTING ENGINEER, NEW YORK

THE Bronx - Hutchinson - South Yonkers joint sewage treatment plant is the most recent project in the ambitious sanitation program of the Westchester County Sanitary Sewer Commission to be placed under contract. It is to be located on the Hudson River at South Yonkers, at the shore end of the deep-water outlet of the existing Bronx Valley Sewer. It is designed to treat the sewage from the Bronx Valley, Hutchinson, South Yonkers and upper Bronx Valley projects, serving a combined area of between 50 and 60 square miles, with a population of about 200,000 and an estimated population in 1980 of possibly 1,000,000 persons.

The principal features of treatment are: (1) preliminary sedimentation with coarse screening; (2) fine screening with incineration; (3) effluent sterilization by liquid chlorine; (4) remote disposal with deep and abundant dilution.

This treatment therefore provides coarse bar screens, a short period of detention and the separation of grit in grit channels, revolving fine screens, incineration of the screenings, chlorination of the effluent, and its discharge through a submarine outfall, approximately 600 feet long, into the Hudson River, at a depth of between 45 and 50 feet.

The plant will be about 200 feet by 120 feet, having concrete foundations, steel frame, brick walls with artificial stone trim, and concrete roof. The architecture is Colonial in type, with the main façade facing westerly towards the Hudson River. Access will be obtained by means of a specially built road from Valentine Lane, and by a railroad siding leading from the main line of the New York Central Railroad, Hudson River Division, directly into the building itself.

Coarse Screens and Grit Chambers

The sewage from the Bronx Valley, Hutchinson and Upper Bronx Valley projects will enter the plant from the east, and that from the South Yonkers project will enter from the north, combining with the sewage from the other projects in the plant. Before entering the grit channels, the sewage will pass through coarse bar screens, where the larger particles will be taken out. These screens will consist of rust-resistant metal bars, with open spaces of 2½ inches between. The material collected on them will be removed by means of mechanical rakes, and discharged upon a traveling belt, which will carry it to the incinerators.

Three interchangeably operated grit channels, each approximately 30 feet long and 7 feet wide, and provided with end control gates, together with another channel 30 feet long and 5 feet wide, will receive the flow from the coarse screens. The velocity of the flow will

LOCATION OF THE BRONX VALLEY-SOUTH YONKERS SEWER IN WESTCHESTER COUNTY, N. Y.

be regulated by automatic flow recorders. The grit will be removed from the grit channels by means of an overhead traveling electric crane with a clamshell bucket, which will discharge it into hoppers, from which it will pass through grit washers of the inclined helical screw type, where the grit will be sprayed and washed, so as to render it permanently inoffensive, after which it will be discharged either to a dump, or into storage bins, from which it can be removed by truck, car or otherwise. Drain lines are provided in the bottoms of the grit channels so that they can be readily drained for inspection or repairs.

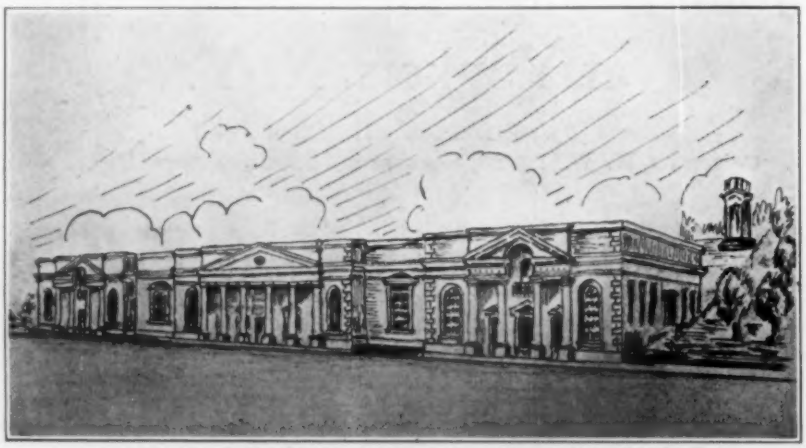
Fine Screens

The fine screens, to which the sewage passes after the retarded flow through the grit channels, will be of the inclined revolving disc type, cleaned by a series of rotating brushes. There will be six of these screens, each 18 feet in diameter, set at an angle of 20 degrees, and when all six screens are operating simultaneously, with a total loss of head not to exceed 12 inches, they will have a combined capacity of not less than 84,000,000 gallons per day, which may be at least doubled by future modifications without costly structure changes. The screen plates, of manganese bronze, will have apertures 1/16-inch wide and 2 inches long. Sluice-gates, varying in general in size from 84 inches by 54 inches to 48 inches by 48 inches, will be provided at the points of control in order to permit the various units of the plant to be operated in a safe, economical and convenient manner. They will be equipped for both motor and hand operation.

Removal and Disposal of Screenings

The screenings will be handled first by being brushed into pneumatic ejectors, which will transport them to the screening bins. A 10 x 8-inch motor-driven compressor will be provided together with all necessary tanks and automatic equipment. A rubber belt will also extend from the discharge point of the screens to the screenings storage bin adjacent to the incinerators, and will be used as an alternate when required. The water content of the screenings as they come from the screens will be reduced by specially designed apparatus.

Incineration is provided for by the installation of two complete incinerating units, one to be of the steel water-jacket type, the other of the fire-brick furnace type. Each is to have a capacity to destroy one ton of screenings containing some 90 per cent moisture by weight per hour. Heavy fuel oil will be used to assist combustion, and auxiliary burners will be installed in each furnace to raise the temperature of the outgoing gases as necessary, in order to insure complete combustion. Apparatus for utilizing the heat of the outgoing gases both for preheating the air entering the incinerators, and for heating the building when the furnaces are in operation, will be installed. An oil heater of ample capacity is provided for general use.



ARTIST'S SKETCH OF THE FACADE OF THE NEW BRONX VALLEY SEWAGE TREATMENT PLANT

Effluent to Be Chlorinated

Chlorination equipment in full duplicate will be installed to provide for the sterilization of the effluent. The present equipment will consist of six vacuum operated chlorinators of the solution feed type. Of these, four will have a capacity of 750 pounds of chlorine each, and two will have a capacity of 350 pounds of chlorine each, per 24 hours. These units will be designed for a variable flow with a range from maximum to minimum of 4 to 1. A scale suitable for holding two 1-ton chlorine containers will be installed. The equipment is designed to receive chlorine from either ton containers or tank cars. Provision will be made to admit chlorine solution to the sewage either in the grit channels or in the 48-inch outlet lines which extend out under the channel of the Hudson River. Liberal provision has been made for expanding the chlorine installation as the flow increases.

Auxiliaries and Laboratory

Water-supply is provided from municipal sources, but wherever practicable, water from the Hudson River will be employed throughout the plant for cleaning and washing; the necessary pumping equipment will be installed for this purpose. Where necessary, all exposed piping, for salt water, fresh water, steam and oil, will be insulated according to the best practice, and all piping, whether covered or uncovered, will be painted a distinctive color to indicate its purpose in the scheme of operation.

Suitable laboratory equipment will be provided. The laboratory will be near the operating office so that all necessary analyses may be made on the ground without delay. Adequate heating and plumbing are also provided. An unusually complete installation of apparatus and tools for emergencies both at the plant and at its connections will be provided, as it is an evident necessity in a system terminating in two interceptors. One of the interceptors has an outlet diameter of between 8 and 10 feet and extends through 5 miles of continuous tunnel. It goes through the county up three valleys in three or more lines of trunk sewers, one of which alone has a total length of nearly 20 miles. The electric system at the plant will be 3-phase, 4-wire, 60-cycle, A.C., with the general lighting 120 volts, and the power 208 volts.

Some notable features embodied in the design of the plant are the architectural treatment, flexibility of operation and access, the large screening capacity, the washing of the grit and the self-contained provision for incineration of the screenings in the plant itself.

Officials and Engineers

The Westchester County Sanitary Sewer Commission serves without compensation. Its members are: Francis A. Stratton, Chairman; Ralph L. Crow, Vice-Chairman; and Henry H. Law, Commissioner. Eugene S. Martin is Secretary to the Commission. The plant was designed and is being erected under the direction of W. W. Young, consulting engineer, New York City. The project engineer is J. W. Van Denburg. The contractors for the plant are The Underpinning & Foundation Co., New York City.

Short Items on Sewage Treatment

Have you read the valuable signed items on page 11 of this issue under the heading, "Items and Abstracts on Sewerage and Sewage Treatment"? This department each month contains much of interest and value.

How a Fact-Finding Traffic Survey Was Conducted

By W. GRAHAM COLE

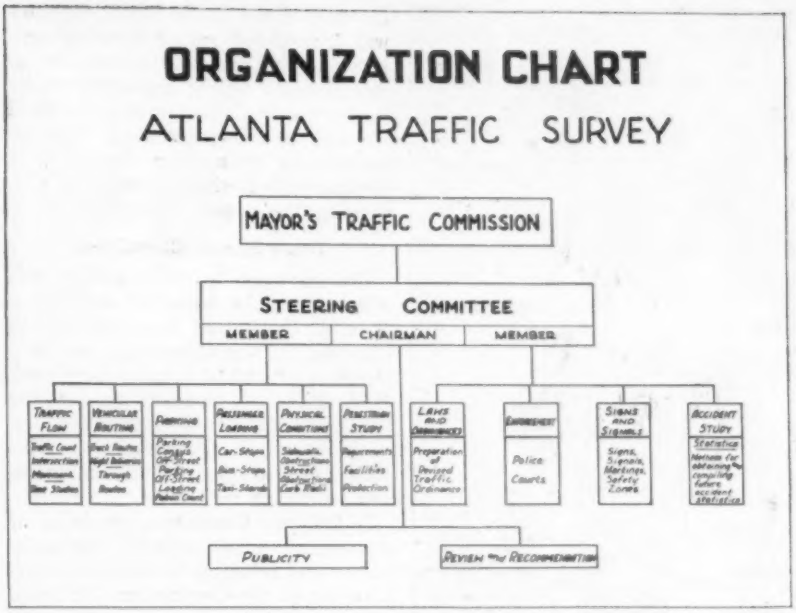


FIG. 1.—SHOWING HOW THE TASK WAS ORGANIZED

IMPRESSED with the desirability of having a fact-finding study made of conditions affecting traffic in Atlanta, Mayor I. N. Ragsdale early in 1929 appointed a Traffic Commission. In selecting the members of this body, the Mayor appreciated the fact that the study should be based on engineering principles and so conducted that it would command the confidence and support of the public. Accordingly, the Commission was composed of representatives of local chapters of national engineering societies, of city departments affected by traffic conditions, and of civic, service and commercial organizations interested in the prevention of accidents or the elimination of congestion on the streets.

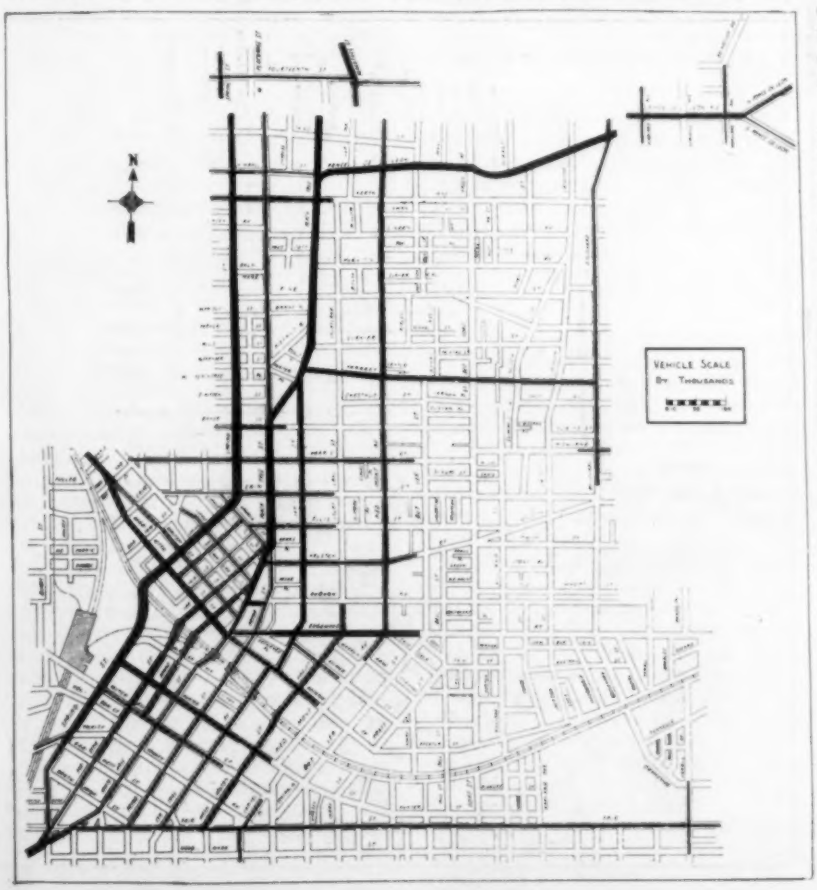


FIG. 2.—ATLANTA'S TRAFFIC FLOW MAP

To aid the Commission in organizing and conducting this study, the Safety Service of the Policyholders' Service Bureau, Metropolitan Life Insurance Company, was invited to cooperate in a consulting capacity. The staff of this Service aided in planning the various street studies which were made, in collecting and tabulating the information, and in preparing factual reports of the various studies. The conclusions and recommendations, however, based upon the information collected, were made by members of the Commission.

The survey was planned as an initial means of developing methods of gathering information, of indicating the need for continuous study and of reviewing certain conditions requiring immediate relief. For this reason no attempt was made to include every section of the city, nor to study every possible angle of the situation. Attention was concentrated upon the central business district, upon certain main thoroughfares, and upon the outstanding phases of the traffic problem, with the thought that, following the initial survey, a continuous study would be undertaken by an official or semi-official body.

Ten Studies by Major Committees

On account, however, of the wide scope of the problem and the many and

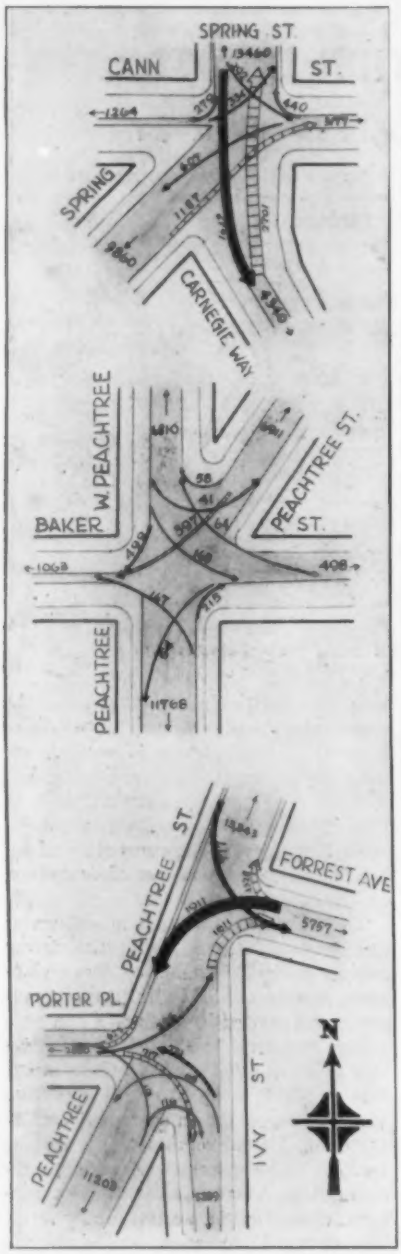


FIG. 3.—TYPICAL INTERSECTION STUDY
One of a series of six studies of vehicle distribution at intersections

varied subjects necessarily involved, the Survey was divided into the following ten studies, each being assigned to a major committee appointed by the Commission:

Traffic Flow
Vehicular Routing
Parking
Passenger Loading
Physical Conditions
Pedestrian Study
Laws and Ordinances
Enforcement
Signs and Signals
Accident Study

Most of these were again divided and assigned to subcommittees. For instance, the work of the Traffic Flow Committee was apportioned among three subcommittees, one being held responsible for making traffic counts; another for studying intersection movements, and a third for making time-run studies. The accompanying organization chart (Fig. 1) illustrates the methods employed in subdividing the respective subjects.

Other Special Committees

To serve as a policy-setting unit which could be convened quickly, a Steering Committee, composed of the Chairman of the Commission and two members selected by him, was appointed. Each of the two members was assigned the responsibility of supervising the work of several major committees. This plan helped to stimulate the committees and coordinate their efforts.

A Publicity Committee, consisting of representatives of each of the daily papers and acting under the general supervision of the Commission Chairman, was appointed to prepare and review press releases in order to keep the public acquainted with the various phases of the study.

A Review Committee, consisting of the members of the Steering Committee, the chairman of each major committee, and six individuals selected by the Mayor, was appointed to review the committee reports as submitted and to coordinate them for the final report.

> ***"To much guesswork about our traffic problems, too many attempts to apply quick cures based on opinion rather than detailed engineering study are the principal reasons which can be assigned for the failure of most American cities to deal more effectively with traffic congestion."***
>
> —MILLER MCCLINTOCK,
> Albert Russel Erskine Bureau for Street Traffic Research

In some instances it was possible for the major committees to collect necessary information regarding their portion of the study by utilizing committee members. In other instances, the committees secured the aid of local business organizations and departments of the city administration, who provided men to make certain counts and studies. The entire survey, therefore, was conducted through local cooperation and without any financial burden on the municipality.

Work and Findings of the Major Committees

The following is a brief description of

FIG. 4.—PROPOSED TIMING SYSTEM
This chart shows the ultimate layout of signals

the work and findings of the various major committees:

Under the direction of the **Traffic Flow Committee,** of which a representative local civil engineer was chairman, counts of the number of vehicles moving over the more congested thoroughfares of the city and at the most congested intersections were made. In all, more than 1,000,000 vehicle movements were counted at 125 stations, requiring the use of approximately 400 individuals. The information obtained was plotted on maps for the use of other committees. Figure 2 shows the relative importance as traffic carriers of certain streets in the central business district, the thickness of the lines representing the quantity of vehicles as shown by the counts. Figure 3 shows the distribution of vehicles at certain well-known intersections, indicating the importance which right- and left-hand turns have on the flow of traffic. Time-run studies were made to determine the speed with which traffic can move over certain thoroughfares and the locations where congestion existed. In addition to securing traffic flow information, the Committee recommended that provision be made for the continuous collection of data of this type.

The Committee on Vehicular Routing, of which the Superintendent of Roadway of the electric railway company was Chairman, studied present practices used by business concerns for the routing of their commercial vehicles. It was recommended that as far as possible delivery and trucking companies change their routes so as to prevent the haulage of heavy merchandise through the Central Business District and that certain heavy commodities, such as coal, building supplies, etc., be delivered at night in the downtown section, when other flow of traffic is comparatively light. The Committee also suggested routes for the use of tourists passing through the city, so as to avoid the use of streets which the citizens require for daily business.

The Committee on Parking, headed by the President of one of the largest department stores and a representative of the Retail Merchants' Association, found that there were 2,665 available parking spaces on the streets within the central business district, according to existing regulations. During two all-day surveys made in cooperation with the Police Department and Boy Scouts to determine just what observation was being given parking regulations, it was found that 3,169 parking hours were illegally used during the eight-hour period. A study of available off-street parking space showed that 4,482 cars could park in existing garages and about 6,000 on parking lots. Of this total of more than 10,000 available spaces, nearly 4,000 are not being used. On one day last summer, 20,241 individuals, either patrons or employees of stores or office buildings, were asked by Boy Scouts and other representatives of the Parking Committee to indicate by ballot how they reached the downtown section. Of the 38 per cent who stated they came by automobile, approximately 15 per cent parked their cars

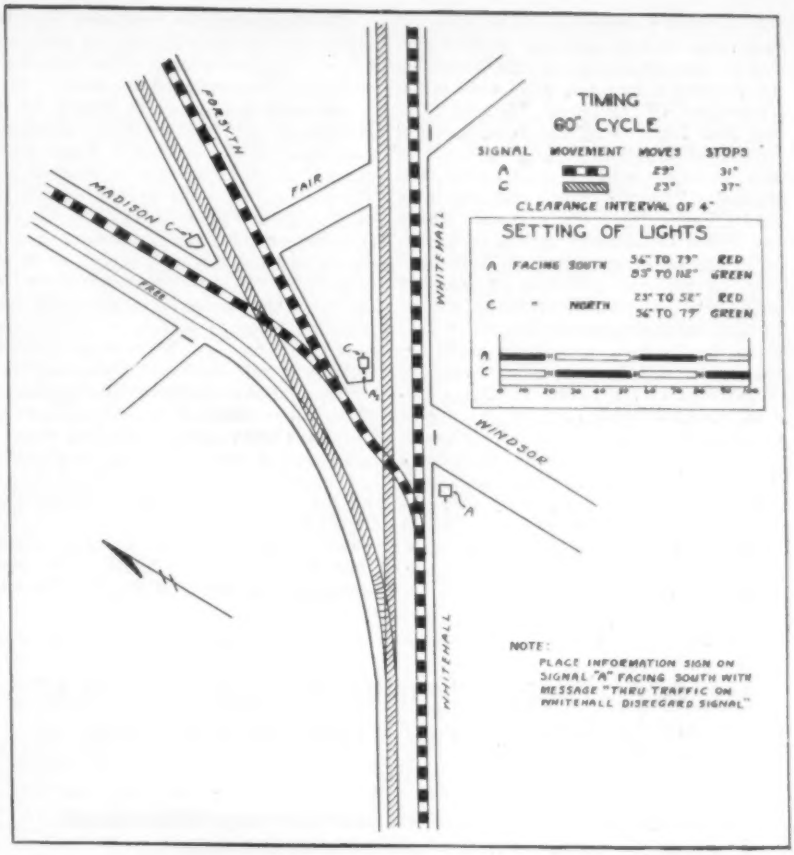


FIG. 5.—A SIGNAL TIMING PLAN
The manner in which the signals will affect traffic at intersections, is shown for Madison, Whitehall, and Forsyth Streets

on the street, 14 per cent in garages and 10 per cent on parking lots. Eleven per cent of the people came on foot, and about 50 per cent by street car or motorbus. The Parking Committee in its report submitted the above information and recommended that further study be given to the problem before definite steps were taken to change existing parking regulations.

The Committee on Passenger Loading, under the chairmanship of the consulting engineer of the Public Service Commission of the state, recommended that, for safety, car stops be located as far as possible on the near side of cross streets. It also suggested that certain specific loading platforms be relocated to relieve traffic congestion or provide greater safety.

The removal of obstructions on streets and sidewalks, particularly building supplies which are frequently stored on thoroughfares, was the outstanding recommendation of the **Committee on Physical Conditions,** of which the Commission representative of the Atlanta Inter-Civic Association was Chairman. The Committee also recommended that curbs be cut back at intersections, so as to provide a greater turning radius for automobiles, thus preventing "bottlenecks."

Pedestrians to the number of 206,893 were counted at eight important intersections during the morning, noon and afternoon rush hours of a normal day. This information was plotted on diagrams for the use of other committees. The Committee found that, of this number of pedestrians, 1,584, or slightly less than 1 per cent, violated existing traffic regulations. As a part of its recommendations, the Committee suggested that a continuous study of pedestrian movement be made by the permanent Traffic Commission; that increased attention be given by the Police Department to the enforcement of traffic regulations; and that continuous effort be made to impress the public with the need for exercising care in crossing thoroughfares.

The Committee on Laws and Ordinances, under the chairmanship of the President of the Atlanta Chamber of Commerce, found that the existing traffic regulations of Atlanta were not easily understandable and contained several inconsistencies, due to the fact that the law represents the accumulation of numerous amendments added from time to time. The Committee recommended that a new traffic law be prepared, based upon the Model Municipal Traffic Ordinance recommended by the Second National Conference on Street and Highway Safety.

The Committee on Enforcement, of which the Chairman of the Police Committee of General Council was Chairman, found that there has been considerable increase in the number of traffic cases reported this year as compared with last. In an analysis which was made of

the charges preferred in these cases, it was found that, of the total of 6,410 during the first six months of 1929, 3,451 were of a major nature and 2,559 were minor violations. Of the former, "Driving Over the Red Light" was first in importance, with 1,000 violations; "Reckless Driving" was second, with approximately 950 charges. The Committee recommended that a Traffic Bureau be organized within the Police Department, that it be placed in charge of a Supervisor of Traffic and that he be provided with at least 75 patrolmen. The Committee also recommended that adequate records of all accidents be kept in accordance with the national standard for reporting traffic accidents and that a Traffic Violations Bureau be established in order to handle minor traffic violations, thus helping to prevent congestion in the Recorder's Court. In a Violations Bureau similar to that established in about 75 cities throughout the country, minor traffic violations are handled through a schedule of fines, without necessitating court appearance of the offender.

The Committee on Signs and Signals, under the chairmanship of the engineer of the Plant Department of the telephone company, recommended in general that future signs and signals in Atlanta be in accordance with the national standards suggested by the American Engineering Council and being adopted in many cities. The Committee made a thorough study of the traffic signal system now in use and recommended the installation of new signals and the timing of signals so as to provide for the continuous movement of traffic. This system of timing and the proposed ultimate layout of signals are shown in Figure 4. The manner in which the signals will affect traffic at a particular intersection is shown for Madison, Whitehall and Forsyth Streets in Figure 5. The Signs and Signals Committee recommended that the entire matter of signs and signals in Atlanta be placed under the authority of the suggested permanent Traffic Commission.

The President of the Atlanta Safety Council served as Chairman of the **Committee on Accident Study.** The report of this Committee indicates the effect which traffic conditions have on the occurrence of accidents. It shows that 60.4 per cent of all accidents occurred on but 24 streets, that 13 per cent of the accidents occurred on the portion of these 24 streets which lie within the central business district. In Figure 6 the Committee has shown the outstanding actions of drivers and pedestrians which frequently result in injury. The **Accident Study Committee** recommended the rigid enforcement of the section of the Atlanta Traffic Laws which provides for the reporting of accidents, and also recommended that the standard accident reporting plan prepared by the National Safety Council be adopted in the reporting of Atlanta accidents.

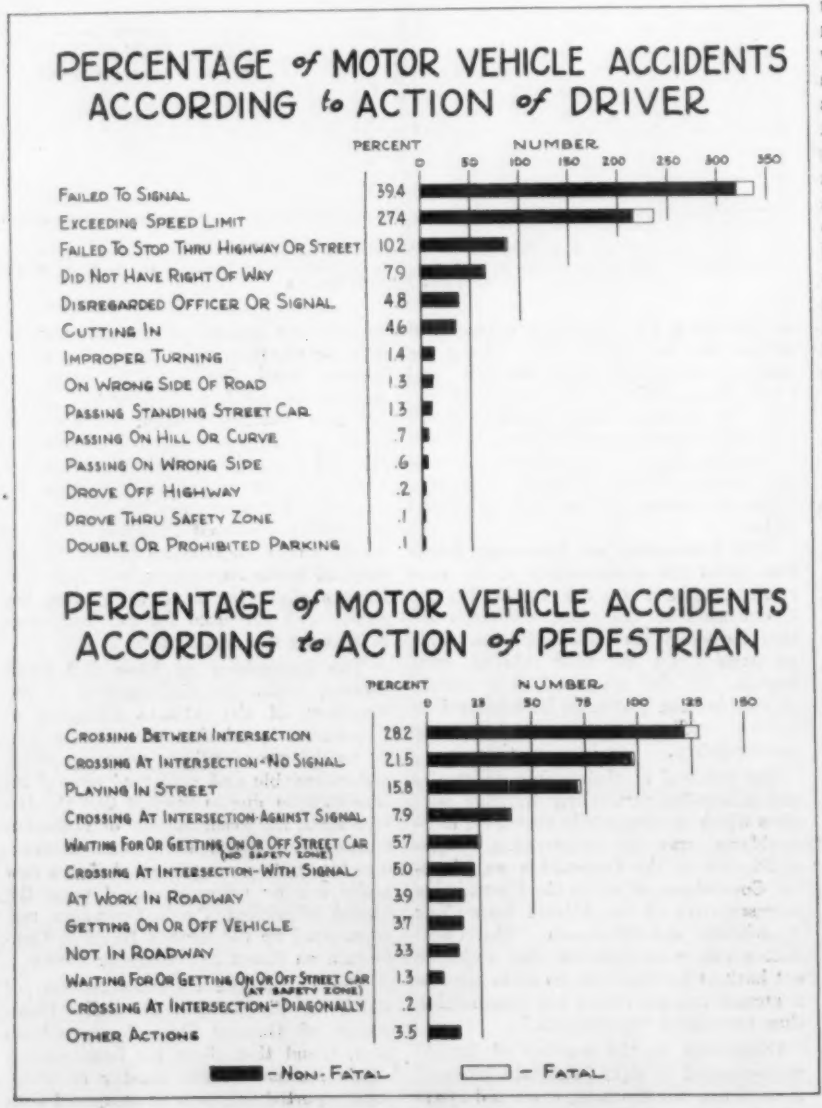

PERCENTAGE of MOTOR VEHICLE ACCIDENTS ACCORDING to ACTION of DRIVER
PERCENT
NUMBER
0 50 100 150 200 250 300 350
FAILED TO SIGNAL 39.4
EXCEEDING SPEED LIMIT 27.4
FAILED TO STOP THRU HIGHWAY OR STREET 10.2
DID NOT HAVE RIGHT OF WAY 7.9
DISREGARDED OFFICER OR SIGNAL 4.8
CUTTING IN 4.6
IMPROPER TURNING 1.4
ON WRONG SIDE OF ROAD 1.3
PASSING STANDING STREET CAR 1.3
PASSING ON HILL OR CURVE .7
PASSING ON WRONG SIDE .6
DROVE OFF HIGHWAY .2
DROVE THRU SAFETY ZONE .1
DOUBLE OR PROHIBITED PARKING .1
PERCENTAGE of MOTOR VEHICLE ACCIDENTS ACCORDING to ACTION of PEDESTRIAN
PERCENT
NUMBER
0 25 50 75 100 125 150
CROSSING BETWEEN INTERSECTION 28.2
CROSSING AT INTERSECTION-NO SIGNAL 21.5
PLAYING IN STREET 15.8
CROSSING AT INTERSECTION-AGAINST SIGNAL 7.9
WAITING FOR OR GETTING ON OR OFF STREET CAR (NO SAFETY ZONE) 5.7
CROSSING AT INTERSECTION-WITH SIGNAL 5.0
AT WORK IN ROADWAY 3.9
GETTING ON OR OFF VEHICLE 3.7
NOT IN ROADWAY 3.3
WAITING FOR OR GETTING ON OR OFF STREET CAR (AT SAFETY ZONE) 1.3
CROSSING AT INTERSECTION-DIAGONALLY .2
OTHER ACTIONS 3.5
- NON-FATAL
- FATAL

FIG. 6.—A CHART OF ACCIDENT CAUSES IN ATLANTA

Traffic Commission's Recommendations

Following the completion of the survey and the approval of the various committee reports by the Review Committee, the complete report of the entire study was prepared, submitted to the Mayor and published by the Metropolitan Life Insurance Co. for distribution in Atlanta. Based upon specific recommendations, the Commission as a whole found that, considering the entire situation, it was apparent that the safe and expeditious handling of traffic in Atlanta is fast becoming one of the major problems confronting the city administration and affecting business and social life. The Commission was convinced that some permanent, official body is essential to supervise the methods proposed by the Commission and to give continuous study to the ever changing demands of traffic in city streets. The Commission as a whole, therefore, recommended:

1. That a permanent Traffic Commission be created as soon as it is legally possible to do so.
2. That a suitable engineering staff be made available to the Traffic Commission.
3. That all information collected by the present Mayor's Traffic Commission be placed at the disposal of the permanent Commission for its information and as a guide to its future work.
4. That the permanent Commission be authorized to make such studies of traffic movements, the effect of existing regulations, the methods of enforcement and the occurrence of accidents which it may deem advisable, to enable it to obtain a full knowledge of traffic requirements and to offer effective recommendations.

City Contracts and a Living Wage

THE little city of Portsmouth, Ohio, is determined that competitors for public contracts shall not compete at the expense of their employees. In a resolution recently passed by the city council of that city, the city manager is authorized to examine into the scale of wages paid for common labor by contractors on public improvements, to determine, if possible, whether their estimates are based on a living wage to these laborers. If otherwise, he is authorized to reject them.

Scientific and Constant Attention to Details in Refuse Collection and Disposal at Cologne, Germany

By GEORGE A. SOPER, Ph.D.
MEMBER, AMERICAN SOCIETY OF CIVIL ENGINEERS

AT one time Cologne was perhaps the most notoriously dirty city in the world, for, whether they were justified or not, the following amusing lines by Coleridge were widely quoted:

> "The river Rhine, it is well known,
> Doth wash your city of Cologne;
> But tell me, nymphs, what power divine
> Shall henceforth wash the river Rhine?"

At the present time the system employed in Cologne for the collection and disposal of house refuse is one of the most sanitary and complete to be found in any city, and the methods of street cleaning contain many admirable features.

The cans containing the house refuse are removed by electric vehicles from the houses to centrally located substations, clean ones being left in their places. At the substations the contents are transferred to gasoline transport vehicles, which carry the material to an incinerator in the country.

The entire process is so designed that whatever is put into the can at the house is kept from sight and smell during the collecting, transporting and final disposition. This is accomplished by (1) having good cans, with strong, tight covers; (2) avoiding emptying the cans into vehicles in the street; (3) transferring the contents of the cans to the transports in a dustless manner; (4) employing enclosed transports; (5) emptying the transports with effective dustless and odorless precautions; and (6) carrying on all the processes of conveying, screening, loading and stoking at the incinerator by mechanical means, the refuse being constantly enclosed in such a way that the dust and odors which arise from it are removed by adequate ventilating apparatus.

The cans are of standard design and are owned by the city. Their capacity is about 29 gallons. When the system was introduced, about two years ago, 51,400 cans were purchased, at a cost of $247,000. The population is approximately 700,000. Many of the residents live in apartment houses, so that one can suffices for several families.

The introduction of the new system meant the abandonment of horse-drawn vehicles and required a change in some of the settled habits of the people. A large part of the total population was served at once, and the system has subsequently been extended. There are two collections a week for most of the city, the cans being taken away between 7 A. M. and 3 P. M.

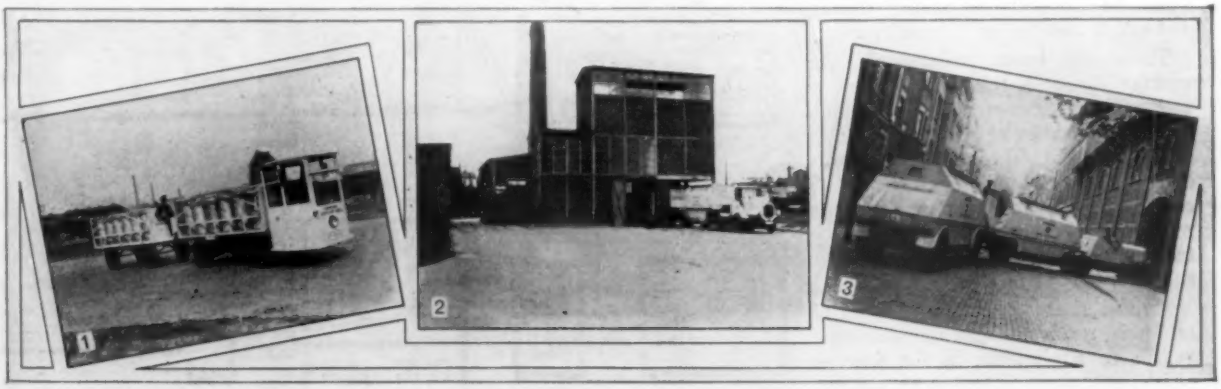
Location of Cans

There was much discussion, when the system was introduced, as to the best location for the cans. To place them upon the streets, at the curb or on the sidewalk, or in the garden in front of the house, was considered inadmissible. Builders and architects considered the practicability of constructing shafts which would take care of the garbage from each separate floor and lead it to cans placed at the bottom of the shaft. This idea was dismissed for sanitary reasons, tests showing that it was impossible to keep the shafts clean. The moisture of the garbage and the dust would cause a crust to be formed on the walls, which would make it easy for vermin to get into the apartments. Theoretically, it would have been possible to provide a small room with a separate entrance and separate ventilation, but experience showed that rooms for the joint use of different families could not be kept clean, being visited at frequent intervals and often by children to dispose of the refuse of the various families in the house. It was finally agree that the cans should be stored in the yard, where this could be done, and wherever possible a small room with a direct entrance and ventilation to the yard is employed. Where the stairs are toward the front, the cans are placed in the cellar.

In collecting the refuse from the houses, the cans are taken away by the city and clean cans returned to the yards, cellars and other places where the local circumstances make it best to place them.

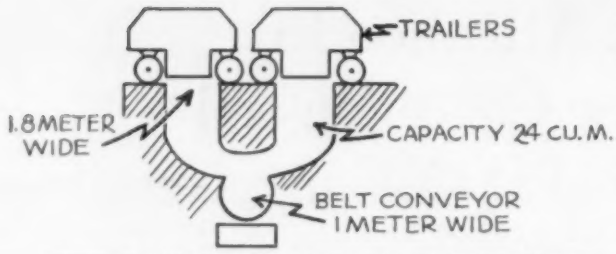
Regulation of Contents of Cans

Ordinances cover the essential rules which must be followed by the citizens in cooperating with the city. Thus, it is the owner of the property who must see to it that the municipality places the necessary number of cans at the designated spot. The users of the cans are



COLLECTION AND TRANSPORT VEHICLES FOR GARBAGE AND REFUSE IN COLOGNE

1. The collection vehicles, an electric truck with trailer. Note the racks to hold the house receptacles firmly in place and to keep the lids from being raised by jolts. Note also the white paint and general cleanliness of the vehicles. 2. One of the eight substations where the cans are emptied and washed. The contents are emptied into the transport vehicles which carry the refuse to the incinerator. The substation is kept dustless and odorless by a ventilating system, the exhaust from which is washed clean by sprays of water. 3. The transport vehicles being towed by a truck tractor. They always go in tandem and are kept tightly closed. The vehicles are filled through the top and emptied through the bottom



DUMPING FACILITIES FOR TRAILERS AT THE COLOGNE INCINERATOR

to put their garbage and other refuse into the receptacles, except trade or industrial waste, liquids of high acidity, or hot embers. The cans must not be filled more than will allow the lid to close tightly, and after the refuse has been put into the cans the lids must be carefully closed. Unwieldy objects must be broken up first to avoid taking up too much space. The cans are no place for liquids or hot ashes. Building rubbish and garden refuse must not be put into the cans used for house refuse. Extra cans can be provided at special rates for whatever can appropriately be taken away in a container of this kind. Old household articles, as, for example, mattresses and bedsteads, must not be put into the streets, but may be delivered to any of the twelve or more branches of the City Cleansing Department, or the Department will come and get them for a nominal charge. Special cans for refuse from restaurants, prisons, hospitals and barracks can be provided by special arrangement. Fines for disobedience of the ordinances will be imposed up to $36, or there may be imprisonment.

Collection

The cans are placed upon flat-topped vehicles which have movable metal racks to hold them securely in place and prevent rattling. On the introduction of the system, there were 66 of these vehicles purchased. They are electrically driven and so have advantages over gasoline or horse traction, both of which would be more expensive, less mobile, and not so suitable for frequent stops.

There are seven substations, the average distances from the houses to each ranging between 0.6 and 1.8 miles. The total quantity of refuse collected in 1928 averaged 1,200 to 1,400 cubic yards a day. The cost of collection was 98 cents per cubic yard. The weight of the refuse varies considerably, but may be taken to average 0.3 to 0.4 of a ton per cubic yard.

Arrived at the substation, the can of refuse is removed from the collecting vehicle to a platform, in the floor of which is a chute provided at the top with a dustless shutter. When the covered can is pressed against the shutter and the bottom raised, the shutter and the can open and the contents of the can fall through the chute. When the empty can is removed, the cover and the aperture at the top of the chute automatically close.

After being emptied, the can is placed in a bathtub. Actuated by means of a lever, a system of strong brushes enters the can and revolves rapidly, water under four to six atmospheres of pressure being introduced at the same time. Between four and five gallons of water are used to each can. The can is now taken out of the tub and inspected and is ready to be returned to a house. The cost of cleaning each can is about half a cent.

Haul to Disposal Plant

The refuse which falls through the chute is removed by a jig conveyor to an elevator which raises it sufficiently to be loaded into the transport vehicles which carry it to the country. The conveyor, elevator and chute to the transports are tightly enclosed, so that no dust and odor can escape. A ventilating system carries the dusty and odorous air from the enclosures to a washing machine, where the offensive materials are washed out. The water goes to the sewers. The solids are settled out and sent to the incinerating plant.

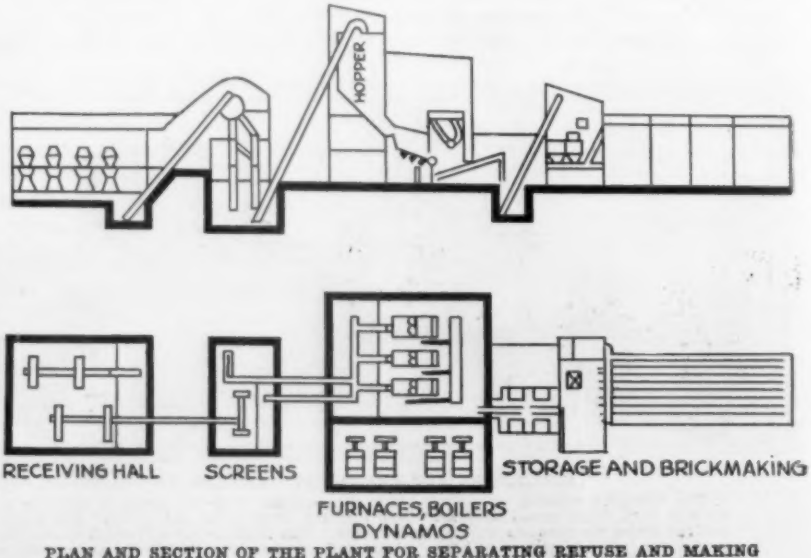
The transport vehicles are of two types—trailers, of which 46 were purchased originally, and tractors, of which there are about 15. The trailers are tightly enclosed during transport from the substations to the incinerating plant. They are provided with windows in the sides, through which the contents can, if necessary, be inspected. Like all the rest of the street-cleaning equipment used in Cologne, they are painted white and kept scrupulously clean.

Two trailers and a tractor make up the usual train. The average distance from the substations to the incinerator is between 5½ and 6 miles. To afford improved traction, the front of the first trailer is supported upon the tractor, thus increasing the weight upon the tractor's wheels. The train is supplied with air brakes which, on being applied, retard the rearmost wheels first, thus permitting a quick stop without any departure from the line of travel. The tractors travel more than 60 miles a day. They have a speed of about 12 miles per hour. They make an average of seven trips in eight hours. They operate on a definite time schedule. A tractor with two trailers costs for gasoline $7.20 a day, reckoning the gasoline at 43 cents per gallon. At first, the heavy trains shook the houses on the way to the incinerator, but this difficulty has been largely overcome by providing pneumatic in place of solid rubber tires.

Unloading at Incinerator

At the incinerating works the transport vehicles with their contents are weighed and then pass to a dumping-floor, which is completely enclosed. It has doors on opposite sides, so that the vehicles, after discharging their loads, continue without having to turn or back.

The transports empty through the bottom into chutes in the floor, provided with tightly fitting dustless funnel arrangements which rise from below and enclose the opening in the transports. There are four sets of chutes, with two openings each, so that eight transports can be discharging their contents at the same time. Inasmuch as each transport can hold 14.5 cubic yards, 116 cubic



PLAN AND SECTION OF THE PLANT FOR SEPARATING REFUSE AND MAKING BY-PRODUCTS

yards of refuse can be discharged simultaneously.

The refuse which falls through the chute is collected into hoppers. These feed a belt by which the refuse is carried to another part of the plant. The supply is so adjusted that a practically uniform loading is provided when the quantity of refuse brought to the plant is sufficient.

Separation of Refuse

The conveyor from the four receiving hoppers takes the refuse to a bucket elevator, which raises it to a considerable height. The refuse now passes before a magnetic separator, which removes iron and steel articles.

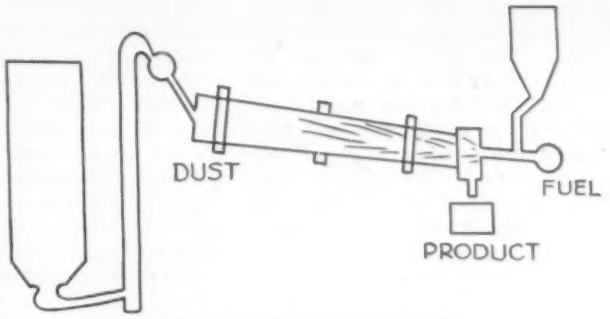
There are two screens. The first has holes of 30 mm., the second holes of 5 mm. The object of the first is to help the second. Whatever fails to go through the finer screen, passes to the incinerator. The intention is to remove as much as possible of the fine dust and treat it separately from the rest of the refuse. The fine dust amounts to 35 to 40 per cent of the total.

The coarser refuse is elevated from the bottom of the screens to the top of a large hopper. This hopper has a four days' capacity. From this it passes to the furnaces by gravity. All handling of the refuse, even at this point, is by mechanical appliances.

The Incinerator Units

There are three incinerator units with a double inclined grate and a steam boiler each. Two of these units are in operation 24 hours a day, and one is in reserve. Each double grate has an area of 17 square yards. The grates have automatically moving bars. One man operates two grates. The temperature maintained is from 1300 to 1600° Fahrenheit. The cinders are taken away to the storage place automatically. The furnaces have been equipped to burn coal-dust fuel in case of emergency. There are two stacks 240 feet high.

The steam is converted by the turbines into electric energy. About 18,000,000 kilowatts are produced annually. About one-third of this is consumed as light and motor power for the plant and vehicles, and the rest is available for sale.



THE TORCH FOR BURNING DUST

The cinders from the furnaces are crushed. Any metal which may still be contained is removed by magnetic separators, coke particles are floated out with water, and the material is stored for a time in a large place provided for it. Subsequently it is sold or used in the manufacture of brick.

By-Products

The brick department contains a bunker from which the slag can be drawn at a uniform rate. The cinders are crushed, sifted, mixed with cement or other binder, moistened with water, and the whole thoroughly mixed and conveyed to brick presses. From the presses the bricks go to long drying-chambers, provided with special ventilation. Steam is provided from the exhaust of the turbines to expedite the hardening. After about ten hours the bricks can be taken out of the drying-chamber. After about a month they are ready to be used. Bricks of a compressive strength of 1,700 pounds per square inch, and a second grade which will stand from 800 to 1,200 pounds per square inch, have been produced.

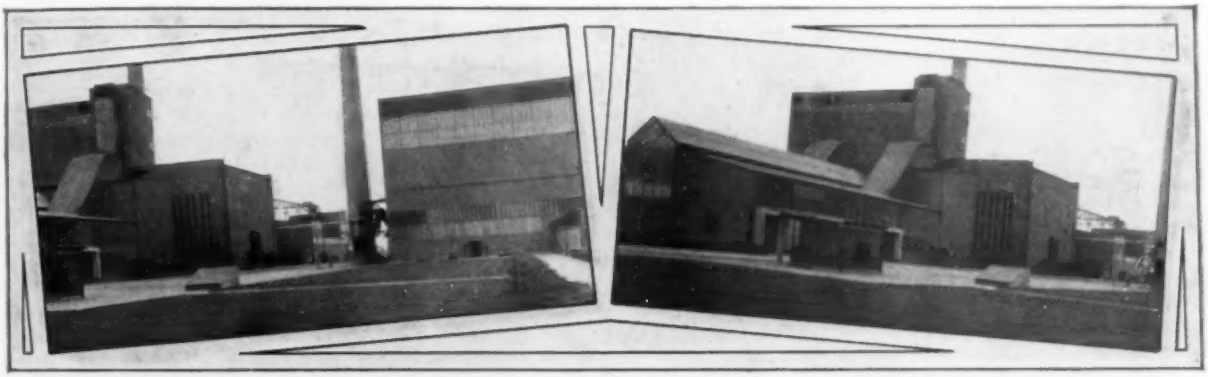
Disposal of Fine Screenings

Much interest attaches to the treatment of the fine screenings. Their composition varies according to the season. Added to that which comes from the refuse is some street dirt which has been removed from the pavements; it has been taken to the centrally located substations, added to the refuse from the house cans, and so loaded upon the transports which have carried the rest of the solid refuse to the incinerating plant. Also, there is some flue dust from the combustion of the coarse refuse and removed from under the boilers and smoke flues.

The arrangement for disposing of the fine dust was designed to have a capacity of about 200 tons every 24 hours. To the dust may be added lime, silica or other material, depending upon the composition of the raw material and the product desired. The refuse is being constantly analyzed, as are the various solid and gaseous products created in the many operations of the plant.

Connected with the works, and an indispensable part of them, are laboratories where competent scientific and technical men are at work. The laboratories adjoin extensive administrative offices, a museum, a rest room, lavatories with shower-baths, and a restaurant, all of which are regarded as necessary in these modern German works. The whole plant occupies about 21 acres of land.

To return to the dust. After being thoroughly mixed, it is transported to



THE CENTRAL STATION OR INCINERATING PLANT AT COLOGNE

Left.—View from the laboratories and administration building. The refuse is weighed, screened and burned in the buildings to the left. In the rear the clinker is stored and bricks made. The fine screenings are carried underground to the buildings and smelted to make artificial stone. Right.—The weigh house and receiving hall for refuse. These photographs were taken from the same point

two cylindrical, rotary melting furnaces. They are placed in a nearly horizontal position. The dust is introduced by means of an air blast at one end, and coal dust which has been crushed and sifted to the required degree of fineness enters by air blast at the other end. The flame fills the retort through most of its length. The flame may be controlled so that a temperature of about 1500° Fahrenheit is secured, in which event there is produced a cinder which is much superior to that obtained in burning the coarse refuse in the furnace, being harder and more granular, and consequently more suited to roads and concrete.

If desired, the combustion may take place at a temperature as high as 2500° Fahrenheit. A molten material results at very high temperatures, which flows to the lower end of the retort and is drawn off into a tank below, which is on wheels. The tank has two outlets, one for a part of the product which, in spite of all care, still contains iron and is, consequently, useless, and the other for the desired portion. The useful part is made to flow into a kettle previously heated by an oil flame. The kettle is run by an overhead rail to molds, where the material is poured. After cooling, a process which has to be carried on very slowly and carefully, there is produced a basalt-like stone which is well adapted for use as curbing. Experiments have shown that with rapid cooling and the addition of suitable ingredients, the slag can be ground into a good cement.

Cologne's incinerating plant and the substations were built by contract with Musag, Cologne-Kalk, a firm well known in Germany for the construction of industrial works such as chemical plants and iron works. This firm is said to employ over 45,000 men. Assurance was thus given of the financial stability of the general contractor. The Musag company has brought to the design of this plant an unusual point of view which accounts for some of the unique features.

Plant Constantly Improved

It is remarkable to see how smoothly the entire process, from the collection of the cans at the houses to the production of the bricks and other results, is accomplished. Nevertheless, it is a large plant, and with so many new features time will be needed to attain the best conditions of working. At the time of my visit, some changes had been made and others were being undertaken.

In the summer of 1929, when I saw the plant, alterations were being made to the hoppers supplying the furnaces, in order to insure a more rapid and improved feed. One of the cylinders was being repaired, following an experiment which had left a good deal of solidified slag within it. There was said to be some difficulty in disposing of the brick, due to prejudice on the part of architects to specify this material, on account of the fact that it is made from municipal refuse. There was trouble in selling the large excess electric energy, due to the fact that another department of the municipal government of Cologne has a monopoly of this service and no arrangement had yet been made whereby the city would take the current which was made at the incinerating plant at a good price.

Impressions

Certain impressions which even a casual visitor inspecting the Cologne system would be certain to receive may be of interest.

The collecting vehicles exchange the cans at the houses with a surprisingly small amount of confusion or interference with the normal activities of the citizens in the streets and dwellings. The men work in groups in accordance with definite schedules, and show much skill and expedition. There is of course no odor or dust in the house or on the streets when the refuse is collected. There are no cans to be seen on the sidewalks. The substations show a high degree of skill in design, construction and operation. There is no odor or dust from the operation of the substations, and it would be permissible to construct them in a built-up section of any city. The incinerator has advisedly been located in a rural district, for experience in the many cities of Europe where incinerators have had the longest and most varied trials has shown that the possibility of nuisance to residents or workers in their immediate neighborhood should be considered. The Cologne works look like an industrial plant. There is no garbage or other refuse to be seen there, unless one peers through windows, or unless metal doors are opened to afford an inspection of the inner workings. The workmen employed are comparatively few in number and have the status, not of common laborers, but of skilled operators such as commonly operate machinery.

Various items of cost, based on the experience up to 1929, can be given, having been supplied through the courtesy of Herr Adolphs, director of the Cologne street cleaning and refuse collection and disposal service, and his engineering and other assistants, and representatives of the Musag Company.

Cost Data

The total investment in the new incinerator is understood to be about $3,000,000. The seven substations, including buildings and machinery, cost $151,000; collecting vehicles, about $360,000; cans, approximately $240,000. Ninety-eight thousand dollars was paid for land, new structures and alterations, aside from the incinerator. Salaries, wages, pensions, special rewards, uniforms, contributions to cooperative associations, old age, sickness and unemployment funds, and over-time during training, cost, in 1928, $264,000. The collecting service to the substations cost $401,000. The repair, maintenance, renewal and interest charges for the cans amounted to $36,000. The working expenses at the substations, including wages, maintenance of machinery and of buildings, cost of the water at 13 cents for 1,000 gallons, electric energy at 0.7-cent per kilowatt-hour, a renewal fund for machinery, and interest at 8 per cent, averaged $81,000 per station. The average cost of taking 1 cubic yard of refuse to the incinerator was $1.10. Had this been done by horse traction, the cost would have been $1.27. The total annual mileage of the electric collecting vehicles was 370,000 miles; each train of transport vehicles covered about 7,500 miles during a year. The cost of collecting and replacing each can averaged about 12 cents.

The most notable feature of the Cologne system was its sanitary excellence. Scrupulous attention was given to carrying out the details. The operation was in the capable hands of a trained and experienced engineer. Without proper care as to operation, even the most capable design would not produce satisfactory results.

Omission in Newburgh Sewer Explosion Article

ON page 107-110 of the March, 1930, issue of THE AMERICAN CITY appeared a valuable article on the sewer explosions which occurred on September 16, 1929, in Newburgh, N. Y. This article was prepared from a report of the United States Bureau of Mines made at the request of the City Engineer and a report of the Independence Bureau, Philadelphia, which was employed by the Central Hudson Gas & Electric Corporation, to investigate it from the public utility's standpoint. Both of these reports were reprinted by the *Newburgh-Beacon News* and distributed throughout Newburgh. The diagrams in the article in THE AMERICAN CITY were taken from the Government report and the two photographs were most courteously furnished by the *Newburgh-Beacon News*. We regret that this acknowledgment was omitted from the article as originally published.

Keep Your Streets Clean

Under this heading, items on street cleaning and snow removal appear on page 21 of this issue of THE AMERICAN CITY from various sections of the country. You will find lots of interesting suggestions, cost data and short cuts packed into these signed contributions.

Pacific Coast Fire Chiefs Attend Fire School at Portland, Ore.

As part of the educational program of the International Association of Fire Chiefs, a three-day "Fire College" was held at the Central Fire Station, Portland, Ore., for chiefs of Oregon and southern Washington. The entire third floor of the headquarters fire-station was transformed into a general exhibit of fire-fighting equipment, which were explained and demonstrated during the course. In addition, watchman's service, fire-alarm telegraph service, automatic sprinklers, and life-saving equipment were either exhibited or demonstrated during the session.

J. W. Stevens, Executive Secretary of the International Association of Fire Chiefs, Assistant Chief Sam Dodd, and Fire Captains Gowell and W. Tebbetts, of the Los Angeles Fire Bureau, were featured extensively on the educational program outlined under the jurisdiction of Fire Chief Edward Grenfell of Portland. Registration totaled 303.

The outstanding feature of the Fire College was the first talking-picture machine ever used for educational purposes. This talking picture, produced from an original idea by Chief Scott and Assistant Chief Dodd, of Los Angeles, featured one of Assistant Chief Dodd's famous inspection talks. According to members of the Portland Fire Bureau, Assistant Chief Dodd understands the psychology of educating his audience in modern fire-fighting methods and is a firm believer in visual education. He uses stereopticon slides which clearly illustrate object lessons.

Practical drills with apparatus and equipment were conducted under the direction of First Assistant Chief James Dillane. Speed was not emphasized, as the demonstrations were for the purpose of showing the evolutions performed during different phases of fire-fighting problems. An interesting example was the jumping of three men, who were 50 feet apart, approximately 25 feet into a net. The men handling the net were required to shift from one point to another by reversal of positions so that no one person would be running backward.

The delegates from the Los Angeles Fire College contributed to the program with important subjects taught in connection with their own school. Some of the topics were Care of Hose, Building Inspection, Head and Pressure, Exposures, Electrical Hazards, Engine Hook-ups, Brush Fires, Suction, Friction Loss, Public Amusement and Theater Fires, Mental Calculation Hydraulics, and Salvage. Additional talks included an illustrated lecture on fire prevention, using stereopticon slides, by Fire Marshal Fred W. Roberts, Portland; a clever talk on First Aid by Capt. R. Slaughter, followed by a practical demonstration, as well as an explanation of the Portland fire-alarm system, by Charles A. Savariau, Superintendent of the fire-alarm telegraph system. A visit to the new location of the fire-alarm telegraph headquarters was made, where the most modern of fire-alarm telegraph equipment has been installed. H. H. Pomeroy, Deputy State Fire Marshal, delivered a lecture on arson, illustrating it with photographs. The Frigidaire Sales Corporation installed a complete apartment house, showing the operation and maintenance of various connections on the different floors outlined by divisional points. Earl A. Blackney, a representative of the corporation, lectured on the uses, dangers, and proper care of that type of refrigeration.

Assistant Chief Harry Johnson, in charge of the Portland fire-boats, lectured on ship and dock fires. A practical demonstration of high-pressure streams was shown, and a lecture on fire streams was given later by Chief Dodd. Portland's model fire-boats were inspected by the group.

The entire delegation praised the Fire College highly. They were of the opinion that considerable knowledge of the details of fire fighting was gained and were satisfied that the idea of the Fire College was the most constructive step ever initiated by the International Association of Fire Chiefs.

FIRE DEPARTMENT REPRESENTATIVES IN ATTENDANCE AT THE PORTLAND FIRE SCHOOL

The program included the following:

First day, Saturday, March 8:

Addresses and lectures on the conduct of a fire school, administration, care of apparatus and hose, fire prevention, building inspection, head and pressure, exposures, electrical hazards, engine hook-ups, alarm system, and domestic refrigeration. Moving pictures of oil storage and oil fires, and of dust explosions. First aid demonstration.

Second day, Sunday, March 9:

Practical drills with apparatus and equipment, inspection of automatic sprinkler system and of new fire-alarm system, and demonstration of high-pressure streams.

Third day, Monday, March 10:

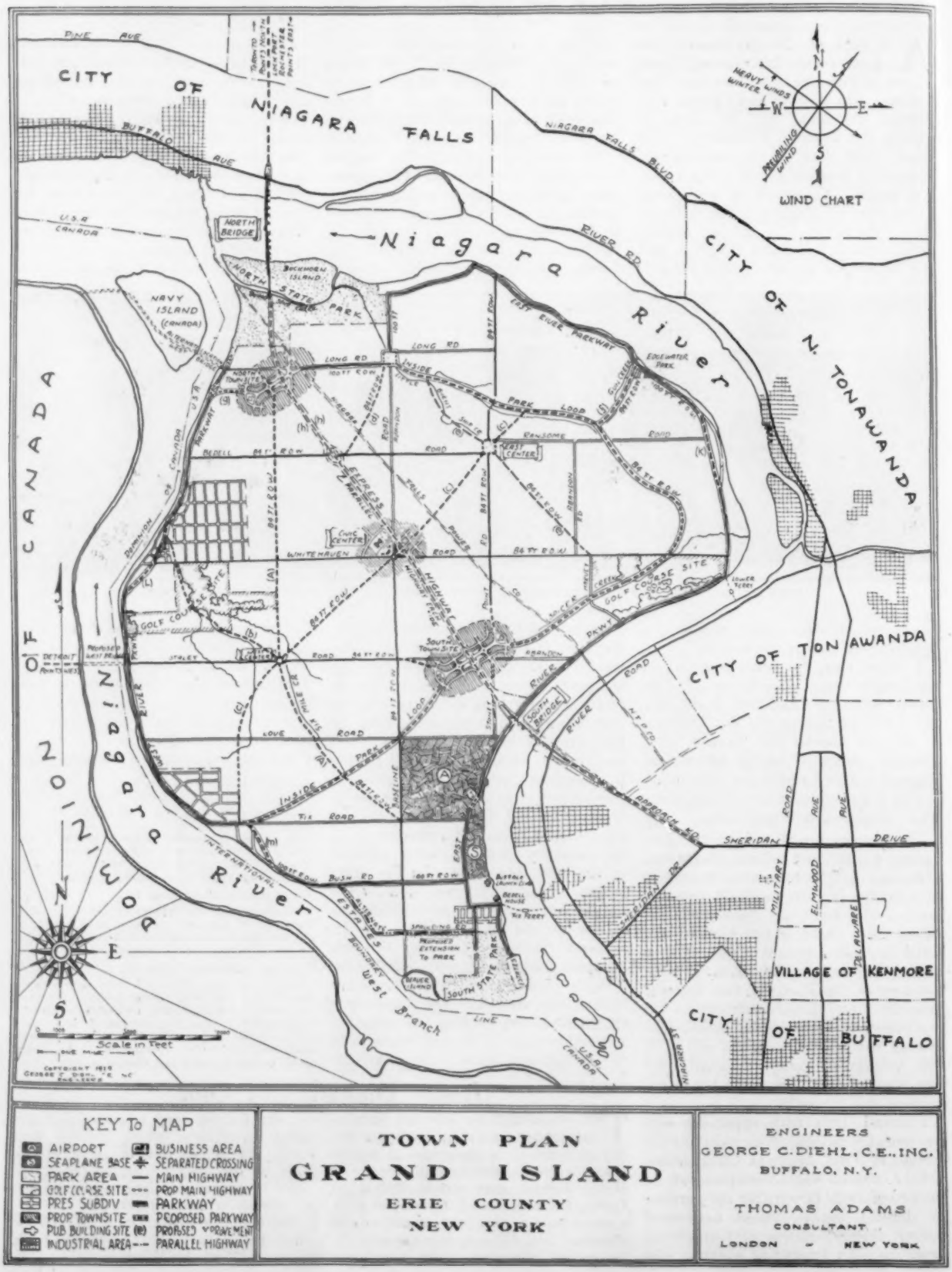
Lectures on ship and dock fires, fire-streams, arson, brush fires (with moving pictures), ventilation, underwriters' formulas, commercial refrigeration, suction, friction loss, watchmen's duties, details to public amusement and theater fires, mental calculation hydraulics, overhauling, and salvage (with moving pictures and demonstration).

Radio Dialogues in Ohio

THE city of Toledo, Ohio, is broadcasting by radio the activities of the city government in the series of weekly talks by city officials inaugurated by Mayor Jackson over station WSPD on Friday, February 7, at 7:30, and has given a novel twist to this form of educational activity. Mr. Citizen, impersonated by the station-announcer, really comes into his own for once and asks the questions about government which interest him most. The entire talk is given in the form of this dialogue and listeners are urged to send in questions to be answered by officials at succeeding talks.

For a similar enterprise, in New York State, but along more conventional lines, see page 177 of the March issue.

A Town Plan for an 18,000-Acre Island



KEY To MAP

- AIRPORT
- SEAPLANE BASE
- PARK AREA
- GOLF COURSE SITE
- PRES SUBDIV
- PROP TOWNSITE
- PUB BUILDING SITE
- INDUSTRIAL AREA
- BUSINESS AREA
- SEPARATED CROSSING
- MAIN HIGHWAY
- PROP MAIN HIGHWAY
- PARKWAY
- PROPOSED PARKWAY
- PROPOSED IMPROVEMENT
- PARALLEL HIGHWAY

TOWN PLAN

GRAND ISLAND

ERIE COUNTY

NEW YORK

ENGINEERS
GEORGE C. DIEHL, C.E., INC.
BUFFALO, N.Y.

THOMAS ADAMS
CONSULTANT
LONDON – NEW YORK

By NEWELL L. NUSSBAUMER
TOWN PLANNER, WITH GEORGE C. DIEHL, INC.
BUFFALO, N. Y.

IN the Niagara River, about halfway between Buffalo and Niagara Falls, N. Y., lies Grand Island, comprising 18,000 acres of land. It has a population of about 850 all-year residents, which is less than the population 50 years ago. There has never been a bridge from the mainland to the Island. Two small ferries operating on irregular schedules have been the only means of communication.

The Niagara Frontier Bridge Commission, recently constituted by the state of New York, is making a report to the State Legislature advocating the building of two bridges over the Niagara River on a line from Buffalo to Niagara Falls, which will shorten the existing route between the two cities by four miles and at the same time make Grand Island accessible. This is highly desirable from the viewpoint of the state, which owns land for two state parks on the Island.

Should these bridges be built, there would be an immediate development of the Island as a suburb of the neighboring cities. To guide this anticipated growth, the Town Plan was prepared.

There were four principal considerations affecting the plan:

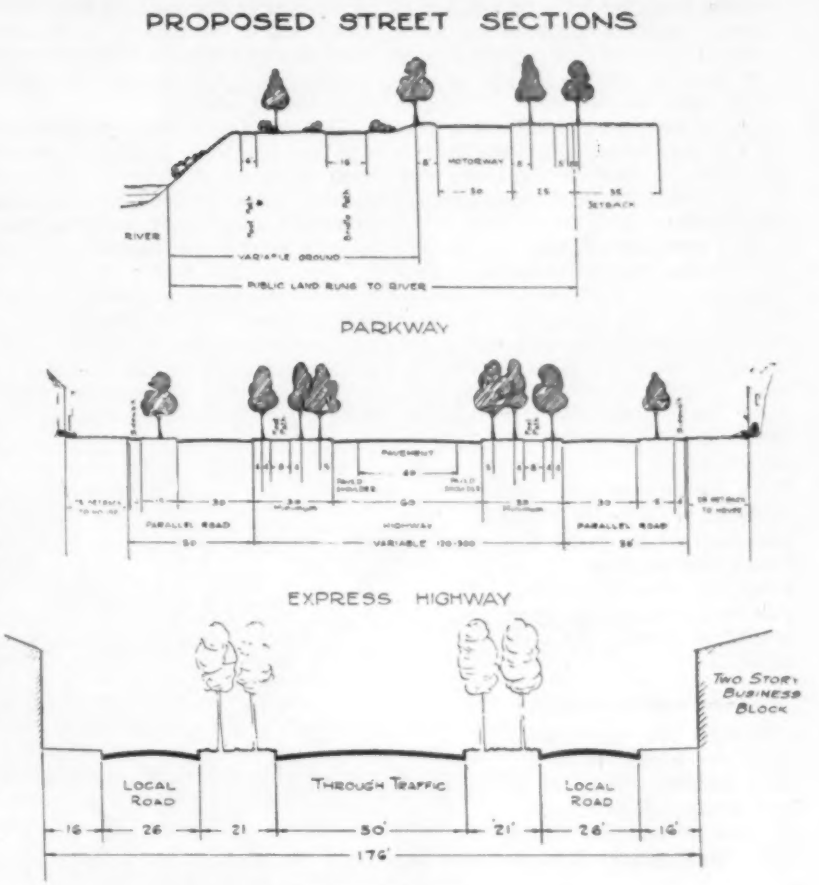
1. The highway system
2. The general plan for municipal services
3. The location of future communities
4. Zoning

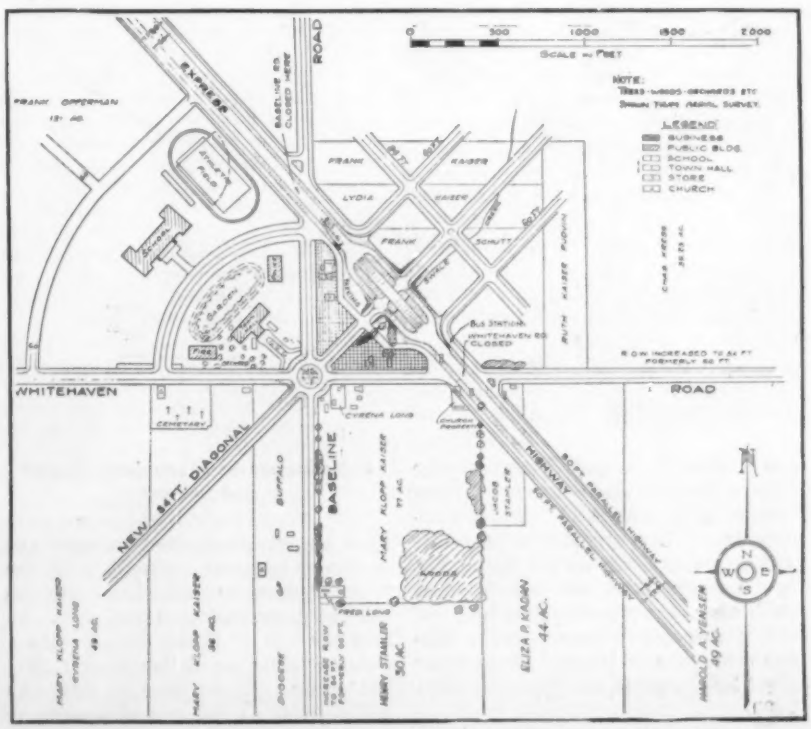
Highway System Planned for Speed, Safety and Beauty

With only 850 people living on 18,000 acres of land, there is practically a clean slate for a start. The highway plan is general in nature. Too much detail was avoided, so that the people on the island in adopting the plan, and the Town Board in carrying it out, would not lose sight of the essentials.

The backbone of the highway system is the express highway joining the two bridges, on which, at points about one mile apart, are structures to separate the grades of intersecting principal highways and to give access to the express highway by a system of four one-way ramps. The express highway at these points will be elevated one-half the distance required for clearance, and the intersecting road depressed one-half. At all other points there will be no entrance to the express highway, but parallel to it on each side will be a service road to care for people living on the adjacent land.

From these four points radiate highways which will adequately serve for many years the population which may come to the Island. The standard width





PROPOSED CIVIC CENTER FOR THE TOWN OF GRAND ISLAND, N. Y.

of these roads was set at 84 feet, and all existing principal highways are to be widened to 84 feet from 66 feet. Around the shore of the Island, and in most cases right on the bank of Niagara River, is an existing road which is to be rebuilt into a beautiful parkway 25 miles in length, to resemble the Queen Victoria Parkway on the Canadian side of the Niagara.

This parkway will also join the two state parks; 535 acres of land have been acquired at the north end of the Island for one, and 446 acres of land are now being acquired at the south end of the Island for the other. Wherever possible, land is to be acquired from the road right down to the water so that the beautiful view will never be obstructed.

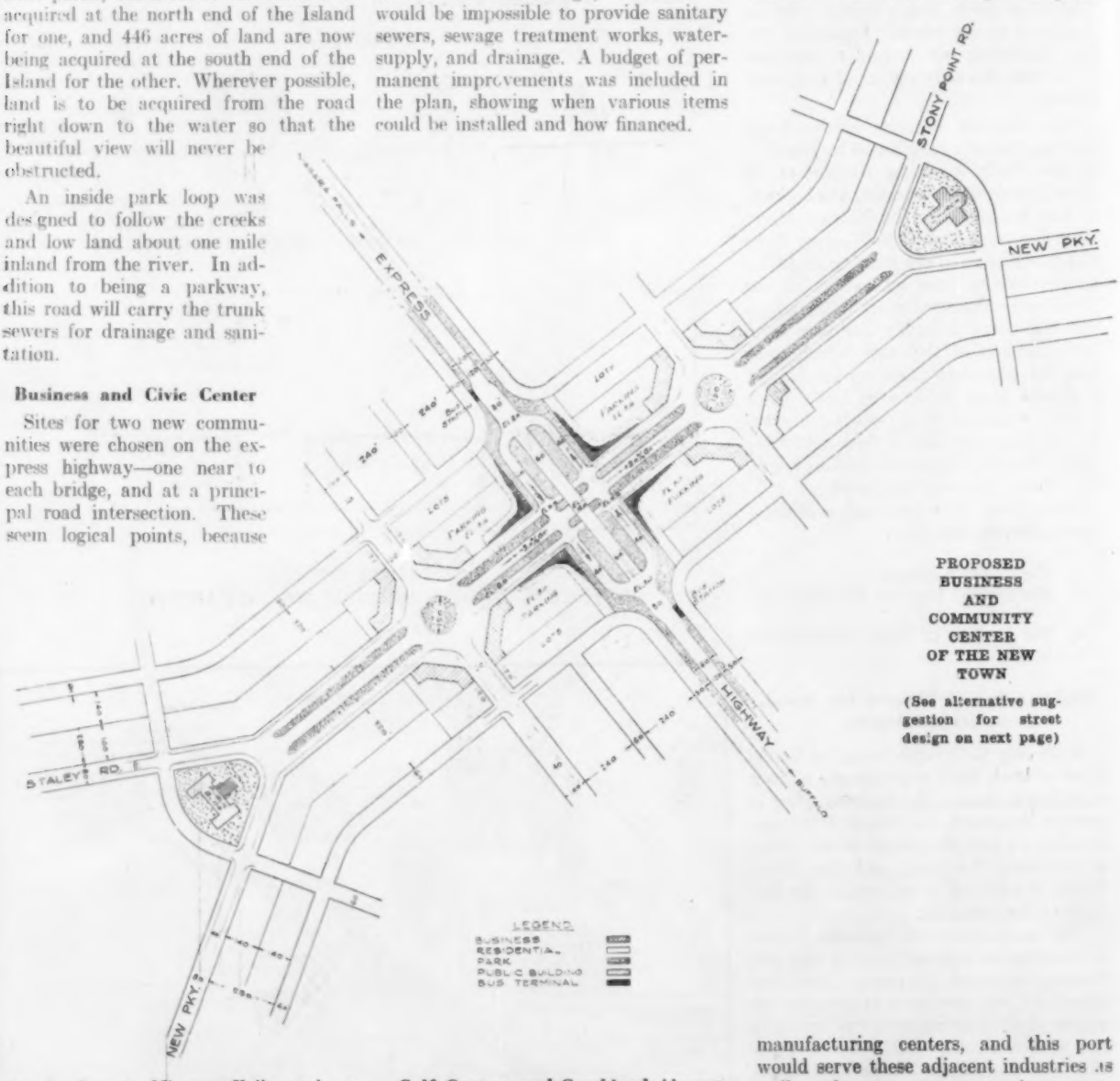
An inside park loop was designed to follow the creeks and low land about one mile inland from the river. In addition to being a parkway, this road will carry the trunk sewers for drainage and sanitation.

Business and Civic Center

Sites for two new communities were chosen on the express highway—one near to each bridge, and at a principal road intersection. These seem logical points, because one is close to Niagara Falls, and one close to Buffalo places which will contribute to the growth of the new communities. They are also local points which persons living on the Island, not in the communities, will seek to reach the bridges. Consequently, business, too, will be attracted to these locations. The south townsite is planned to care for about 5,000 persons, and the north about 3,000.

The civic center or governmental seat is retained at the center of the Island, which will be accessible to all sections. Here sites for a town hall, with accessory buildings, a high school and an athletic field, are set aside.

The financing of local improvements and installation of municipal services must be by special districts. The total assessed value of Grand Island is only $4,000,000, so whatever money is spent must be spent in concentrated areas and to the best advantage; otherwise it would be impossible to provide sanitary sewers, sewage treatment works, water-supply, and drainage. A budget of permanent improvements was included in the plan, showing when various items could be installed and how financed.



PROPOSED BUSINESS AND COMMUNITY CENTER OF THE NEW TOWN

(See alternative suggestion for street design on next page)

Golf Courses and Combined Airport and Seaport

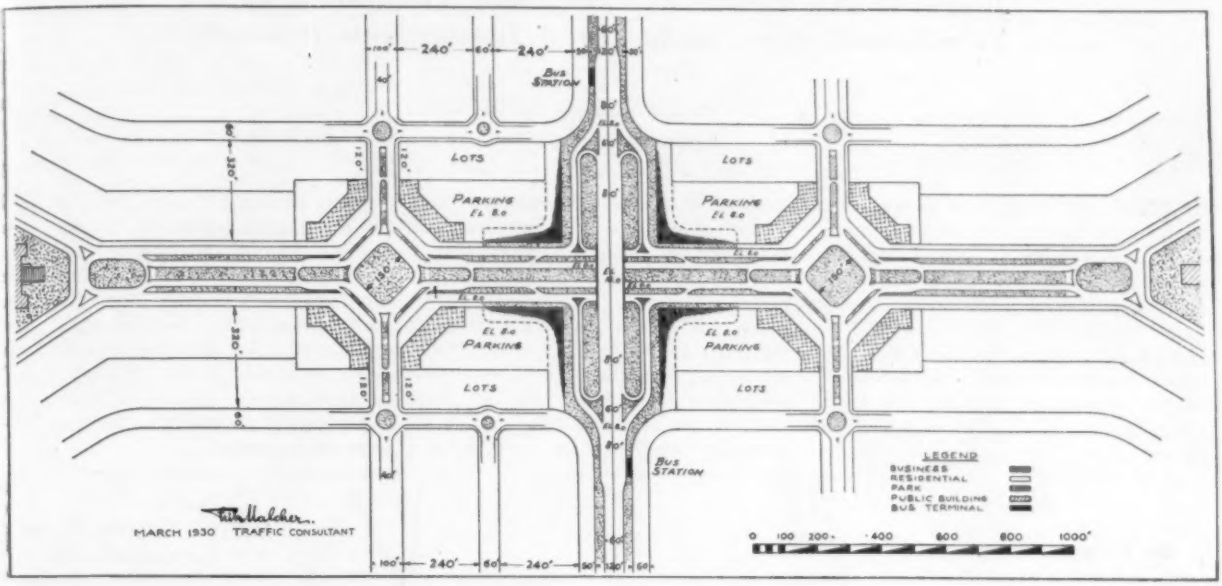
The zoning of the Island is not complete, but certain studies were made and certain suggestions included with the plan. Most modern suburban communities now have their own golf clubs. An area the size of Grand Island, with a possible future population of over 200,000 persons, should have at least two golf courses. As the type of topography which lends itself to the economical development of a golf course is not plentiful on the Island, two suitable areas of about 300 acres have been designated as future golf course sites, and efforts will be made to have at least one developed at once.

A fine opportunity to create a combined airport and seaport in the very geographical center of the Niagara international area is afforded on the Island in the site designated, of 450 acres. Buffalo now is one of the larger aeroplane manufacturing centers, and this port would serve these adjacent industries as well as the transport companies.

This plan is to be a guide for the orderly and economical development of Grand Island when and if the suggested improvements are necessary and desirable. No plan should be construed as exciting a community to embark on a large, unwarranted program of expenditure.

AUTHOR'S NOTE.—The Town Plan was prepared by George C. Diehl, Inc., engineers, who had as consultant, Thomas Adams, of New York and London.

An Alternative Street Plan for Traffic Facilitation in the Business and Community Center of the New Town



BECAUSE of the present widespread interest in problems of street design for the safe and expeditious handling of traffic in business and community centers, Fritz Malcher, at the request of THE AMERICAN CITY, has prepared the plan reproduced above. It is a tentative sketch showing how Mr. Malcher, who is now serving as a traffic consultant for the Westchester County Park Commission, would redesign the town center shown on the preceding page, in accordance with his system of "street crossing without intersection of traffic."

Billboards to Be Regulated and Taxed in New Jersey

LEGISLATION of far-reaching importance to all who would conserve the beauty and increase the safety of our highways, has been enacted by the 1930 session of the New Jersey Legislature.

Section 1 of the act provides that:

"No person, firm or corporation after the first day of January next shall engage or continue in the business of outdoor advertising for profit through rentals or other compensation received for the erection, use or maintenance of billboards or other structures upon real property for the display of advertising matter without a license for that purpose from the Commissioner of Motor Vehicles, and payment of the sum of $100 hereby imposed for revenue for the use of the state. Every such license shall remain in force for the term of one year from and after said day of January, and may be renewed annually on the same terms. . . ."

The act also provides that all outdoor advertising, except on premises where the business advertised is carried on, shall pay to the Commissioner of Motor Vehicles 3 cents per annum for each square foot of the surface used, or to be used, for advertising purposes. Permits to maintain and use each billboard or other advertising structure, must be secured from said Commissioner, and may be renewed annually.

Sections 7 and 8 are of special importance:

"No billboard or other structure for advertising purposes shall be erected or maintained within a distance of five hundred feet of an intersection of a highway with another highway, or with a railroad or street railway, at a point where it would obstruct or interfere with the view of a train, street car or other vehicle on the intersecting highway, railroad or street railway; nor shall any such billboard or other structure be erected or maintained on any public highway, park or other public property.

"No permit to erect or maintain a billboard or other structure for advertising purposes shall be issued which in the judgment of the Commissioner of Motor Vehicles is or would be injurious to property in the vicinity thereof, or injuriously affect any public interest; nor shall any such permit be issued to erect or maintain any such billboard or other structure in a place where the same is or shall be prohibited by any municipal ordinance."

The act further provides that the fees for permits, in excess of the expenses of administering the act, shall be divided among the municipalities in which billboards or other structures used for advertising purposes are located, this division to be in proportion to the fees collected for outdoor advertising in the respective municipalities.

The penalty clause of the act is:

"Any person, firm or corporation erecting, maintaining or using a billboard or other structure for advertising without complying with the provisions of this act shall forfeit and pay the sum of $100 to be recovered by action at law by the Commissioner of Motor Vehicles for the use of the state, and every day that such violation continues shall be treated as a separate violation of this act."

This new law, which was signed by Governor Larson on March 25, had the enthusiastic backing of several organizations, including the New Jersey Committee on Restriction of Outdoor Advertising, the National Council for the Protection of Roadside Beauty, the Civic Committee of the New Jersey State Federation of Women's Clubs, the Garden Club groups, and the endorsement of the New Jersey State League of Municipalities. In the drafting of the bill the oganizations backing the measure had the able legal advice of Frank Bergen, of Newark, and Albert S. Bard, of New York.

As originally drafted, the bill provided for a 5-cents-per-square-foot tax on billboards. This and other features of the bill met with active opposition from the Associated Outdoor Advertisers of the state, who succeeded in getting the tax rate reduced to 3 cents per square foot. Even at this lower rate, the billboard interests allege that the proposed tax is confiscatory, and have announced that the constitutionality of the new act will be tested in the courts.

High-Efficiency Signaling Raises Street Capacity

Recent Trends Toward Full-Progressive Coordinated Type—
Two Signal-Surveys Indicate Great Improvements Practicable

By J. ROWLAND BIBBINS
CONSULTING ENGINEER

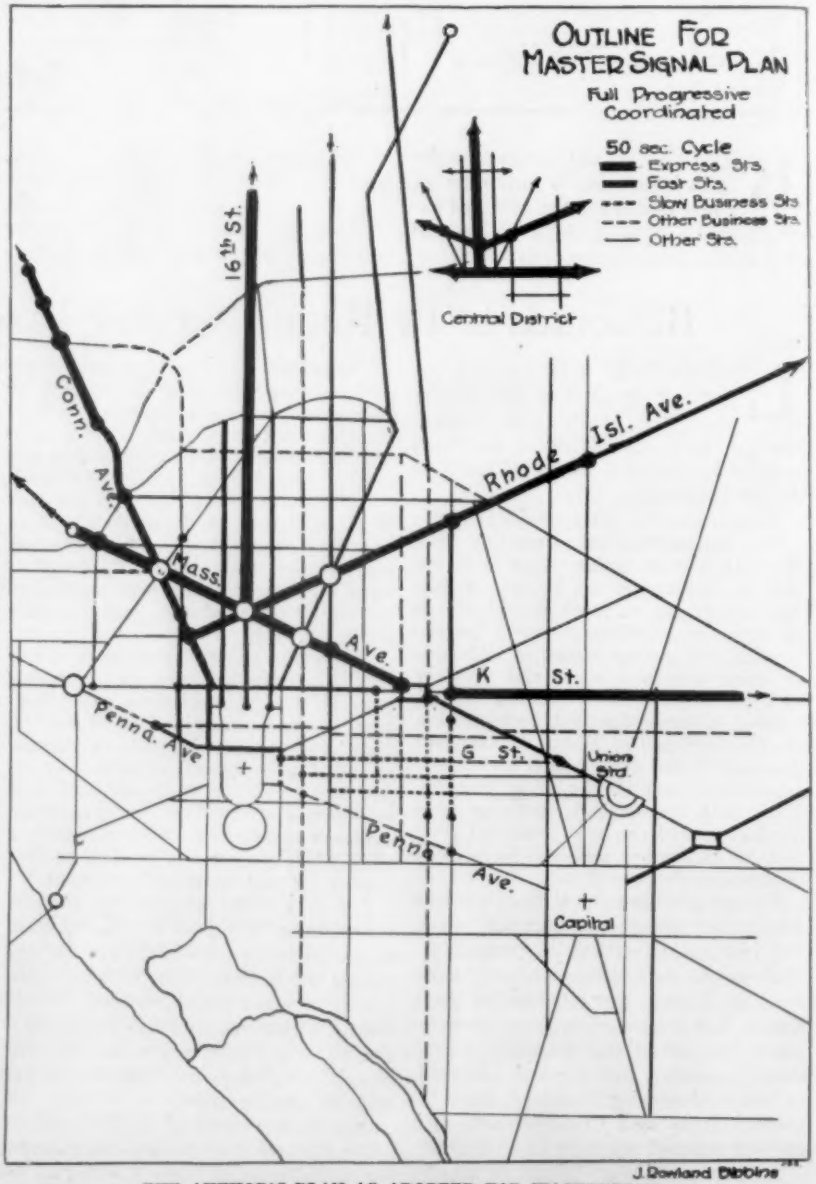
THE last decade has developed no feasible way to make over our central cities. Street widening, grade separation and subway costs have generally proved prohibitive; arcading and "no parking" are still stoutly resisted by most property owners; and even zoning has failed adequately to check tremendous building and traffic concentrations. In the meantime the street burden grows, especially ton-mileage as measured by gasoline used.* In spite of us all, remedial measures applied have not actually kept pace.

But there is still one major quick remedy—increasing street capacity by keeping traffic on the move, through high-efficiency speed signals aided by effective parking regulation. For when interlocked or coordinated as a system and properly designed, the practical effect is often *equivalent* to doubling roadway width, and moving traffic at a far more reasonable and economic speed than exists today. This has been brought about only by recent engineering development and precise designing in applying the flexible progressive signal to present needs. Relatively, the cost is negligible.

Progress Towards the "Progressive"

A recent inquiry among the large cities reveals a status in signaling decidedly laggard and "spotty." The trend is steadily upward toward the full-progressive system,† but modernization is slow and piecemeal. Millions have been spent and are being spent on low-efficiency or obsolete types, with the questionable policy of covering the greatest city area at the least cost. Once installed, the resistance to change-over is great. There is yet too little evidence of signals conceived on a broad master plan properly interlocked with the minimum number of cycles, that is, coordinated, to use the street system to best advantage.

The first cost of proper signals is not much greater than that of the simpler types, and even the conversion to full-progressive sometimes costs not more than 20 per cent additional. It is increasingly apparent that this type, as a system, alone approaches the basic need of all transportation—*to keep on the move*. And if the progressive is not justified, simple types have less cause for installation in large cities except in very special cases. Isolated signals are often needed, but should be installed with care, preferably of the "demand type," so as to be later "hooked up" first in the "skip-signal" progressive, and later full-signaled as needed.



THE AUTHOR'S PLAN AS ADOPTED FOR WASHINGTON

* Washington's auto registration has increased 25 per cent in two years, but gas consumption 45 per cent. For the United States in five years, gas consumption has increased 106 per cent; auto registration, 63 per cent.

† In some 20 cities, three or four only use the full-flexible progressive as a coordinated system, mostly in the central district, one case on high-speed trunk lines; four cities have some fixed cycle progressive runs (no central control); eight have skip-signal progressive runs in use or contracted for; five others still use the old synchronous systems, and the smaller cities generally synchronous or staggered synchronous, with equal time-split (red and green) regardless of the relative volume.

NOTE.—What I call "skip-signal" progressive is a run of flexible signals at main crossings only, with "Stop" sign protection at the intervening minor streets. This system most readily accommodates itself to difficult street systems and block lengths, and yet will facilitate full signaling later if needed.

Important Effect Upon the City Plan

All this bears upon the broad city plan in its various aspects: street classification and paving; transportation; and the system of traffic control, routing and terminals, to the best combined advantage, whether one rides on rail or rubber. It is a problem of first order of magnitude.

A properly signaled system should, by providing satisfactory speeds, encourage traffic to use specially selected main streets designed therefor. In fact, this is one practical aspect of zoning, on account of its serious economic reflex on housing, property values, business efficiency, and even on transportation rates and service throughout the areas. Yet we often find city plans laid out to force high-speed traffic onto business and transportation streets, where the high- and low-speed movements will not efficiently mix, especially at rush hours, when transit lines have to move at least one-third of the city population to and from work. On the other hand, some traffic officials seem content with low-efficiency signals because they scatter traffic to other streets—a dangerous policy, increasing accidents on narrower residential streets never designed or paved for such a burden.

Speed alone will expand residential settlements to more healthful surroundings. Without it, inlying housing necessarily drifts to tenement type, and congestion or decline. Fortunately, efficient signaling now makes possible a large increase in average street speeds, perhaps double, without increasing crest speeds; and a transit speed up as high as 40 to 60 per cent. Such opportunities rarely occur in the history of transportation.

The Need of a Master Signal Plan

To illustrate, two recent signal-surveys, termed I and II, may be cited, both for heavy metropolitan conditions and exceedingly difficult street systems. In the first, Washington, D. C.,‡ a re-study of the main street system developed the possibility of such a master plan with the main signal runs interlocked on one 50-second master cycle, and yet yielding stated speeds—slow, medium and high—suited to the different districts. But trial studies of each main control street with different cycles and speeds, reasonable for the districts traversed, finally revealed a compromise cycle of 50 seconds, giving sufficient rush-hour capacity and with main intersections coordinated at key crossings of controlling traffic. Parallel streets requiring future signaling would naturally fall in step to secure as far as possible non-stop movement for both main radial and cross-town streets.

‡ Report on Traffic-Signal Survey, by J. Rowland Bibbins, submitted to and adopted by Washington Traffic Council.

TYPICAL RESULTS OF SIGNAL RE-DESIGNS, WASHINGTON SURVEY

	No. of Circuits	Cycle Length Sec.	Cycle Split Sec.	Width Through Time Band Sec.	Time for Through Traffic %	Increased Through Capacity Non-stop %	Overall Through Speed Non-rush M. P. H.
16th St. Main traffic trunk, 2.19 miles							
Present (a)	1	80	40–40	13	16		16
" (b)	1	45	24–21	9	20		
Proposed	1	50	Variable	19	38	111	24
R. I. Ave. Diagonal trunk, 1.79 miles							
Present (c)	1	58	27–31	8	14		14
" (d)	4	50–80	Equal	None	None		
Proposed	1	50	Variable	19	38	171	19.5
Mass. Ave. Diagonal trunk, 1.55 miles							
Present	6	46–80	Equal	None	None		14
Proposed	1	50	Variable	22	44		19
K Street. Central clearing trunk, 0.85 miles							
Present	3	80–58	Equal	None	None		
Proposed	1	50	Variable	18	36		18
G Street. Main business street, 0.65 miles							
Present	5	46–62	Equal	None	None		8
Proposed	1	50	Variable	18	36		12

NOTE.—(a) I to Florida Ave., lower section; (b) Euclid to Newton, uptown section; (c) 1st to 12th Sts., east section; (d) 12th to 17th Sts., central section.
Width of "through-time band" is the number of seconds available for through non-stop traffic, also expressed as percentage of total cycle time during which traffic continues non-stop. The real fluid capacity of the street is best indicated by "Increased through capacity, non-stop." On streets with uncoordinated control circuits no through non-stop movement is possible.

Of course, this conception has its limitations, and outside the central district higher line speeds and possibly a few different cycles may work out best. Similarly, interrupted trunk diagonals like Pennsylvania Avenue (107-foot roadways), may require special treatment. For example, the immense new building concentration in the "East Triangle," housing about 25,000 people (and later the West Triangle) will superimpose added burdens upon present deficient signal capacity.

In any city it should be the purpose of the master signal plan to develop the main thoroughfare plan to its greatest efficiency by signaling for appropriate non-stop speeds and maximum street capacities. To secure this, separate local timers at each signaled crossing, and the absolute minimum number of cycles, will be necessary, centrally controlled, to secure some range of cycle and speed to meet varying street and climatic conditions, especially in rush hours. Thus the main issue is whether to work for a standard-speed disconnected system with varying cycles and limited capacity, or a standard-cycle system with varying speeds and maximum capacity. Between these two limits rests the entire question of economic signal design, involving best adjustment of the numerous complex variables. The flexible progressive meets these variable conditions best as a system. Yet even here, real results depend entirely on the design.

The motorist gages practical results by average speed. Yet capacity is more important than speed. The progressive designs yield an increase of 50 per cent average speed with double or treble increased through capacity, most helpful in rush hours. This, then, is the direct equivalent of normal street widening, obtainable at relatively insignificant cost.

That much of present-day "congestion" at traffic intersections is due directly to wasteful timing and lack of signal interlocking, is indicated by the fact that at important points from 50 to 100 per cent of the average rush-hour traffic in Washington was held by signals, piling up traffic to no purpose. At Dupont Circle, where the traffic waves or platoons contact, regularly-timed surges occur, mounting as high as one and one-half to two times the mimimum flow. This is due to "cycle jams" which would be ironed out in a smooth progressive flow.

For full-capacity results, all signal designs must be based upon maximum peaks of rush-hour flow, that is, 15-minute, 5-minute, and even cycle intervals. Many traffic surveys are reported in terms of "maximum two-hour rush," or an even clock hour. But these peak rates are found to be as high as 25 or 40 or even 50 per cent above the clock "hour rates." Thus, if split-timing is not designed to handle these peak demands, congestion will result. Traffic rarely balances N-S and E-W, hence the fixed equal red and green split-timing of the staggered synchronous system is evidently exceedingly wasteful; even more so the plain synchronous system.

Accuracy of speed control is alone provided by the progressive system, also giving the highest average speed for lowest crest speeds, absolutely preventing over-speeding. By properly signing the street, both speeders and stragglers will be forced to keep in step.

Poor Signals May Increase Accidents

Accidents should be studied street by street. It is a question whether low-efficiency signals will not cause more accidents than they prevent, especially if signals are installed long before needed or operated at hours when not needed, thus increasing violations by motorists exasperated by the delays. In Washington, the 16th Street trunk carries less

traffic today than in 1925 when unsignaled. It has been diverted elsewhere; similarly, about one-third of the traffic through Dupont Circle.

Pedestrian Control Needs Further Study

In Survey II under typical metropolitan conditions, the astonishing fact was found that a majority of the 60,000 pedestrians tallied, actually violated the red signal without waiting for the green. Violations varied with the cycle length. Pedestrian psychology demands short cycles as the best automatic safety device—better than an army of policemen.

While walking intervals must be sufficient to afford full protection, unreasonably long intervals simply waste street time. In Survey II, the weighted average crossing time required to walk 100 feet was 21 seconds, or 4¾ feet per second for 98 per cent of all pedestrians. "Active" men required only 19 seconds average; "slow" people (2 per cent of the total) required 28 seconds.

On very wide streets, like Pennsylvania Avenue, Washington, 107 feet wide, signaling for a full crossing of the slowest walker, as some police authorities demand, seriously reduces the efficiency of any signal design. Here midstreet safety zones should be provided to safeguard half-crossings for the "inactive" minority.

Economics of High-Efficiency Signaling

Survey II shows large improvement possible in traffic and transit speeds, even with a difficult street system. Observations taken just before and after lights were turned on, at 8 A. M. showed speed reductions of 40 to 50 per cent. But by changing to full-progressive, pre-light traffic speeds can be restored and transit speeds increased from 25 to 60 per cent.

Total money losses to all types of street users run into huge figures difficult to estimate except on transport systems. For example, on one 5½-mile car line alone, by re-designing the 3½-mile signaled section, some $28,000 per year can be saved in trainmen's wages alone, and about 9 per cent of the cars released for better service here or elsewhere. This is nearly $8,000 per mile of signaled route. In another city, a taxicab official reports that an increase of 10 per cent in street speed would result in savings of $100,000 per year.

A New Régime Is Needed

Progress has just begun. More careful surveys, time-analyses and closer technical designing are urgently required to aid the planning and police authorities in their work, with a better-balanced perspective of the real needs of all street users. This is real city planning in an immediate practical sense.

Space-Time Planning and Airmindedness

By CAROL ARONOVICI
City Planner, Los Angeles

THE present trend towards concentration of population in metropolitan regions demands new adjustments and in many instances complete and costly reconstruction. At this moment nearly 70 per cent of the people of the United States live in comparatively few groups of communities, occupying only one-hundredth of one per cent of the area of the United States. Distances are no longer measured in miles, but in terms of time. Transportation facilities, whether these are provided by public service corporations or by governmental bodies, are facing the question of so adjusting their schedules as to meet the fluctuating needs and demands of the public, by a greater flexibility amplified by greater speed between terminal points.

The railroads are efficient but cumbersome and costly means of transportation. Though devoid of flexibility as to route, and incapable of indefinite expansion as to bulk, they may remain for some time to come the main foundation of bulk transportation. The motor-bus, however, has slowly but steadily come to meet the requirements of greater flexibility in objective time schedules and bulk, while the private automobile has prevented any very rapid development in recent years either of railroad facilities or of motor-bus transit. The airplane alone meets the more pressing modern needs for bridging distances by shortening time and increasing the flexibility of route and time schedules and of bulk units to be transported.

Fourth Dimensional Planning

This new factor of transportation, which has resulted in what we have now come to consider as the requirement for a wider development of airmindedness, has brought the city planners of the present day face to face with a new phrase of community building which might be called "time-space" or fourth dimensional planning.

It is a well-known fact that the motor vehicle has given a new impetus to city planning. In particular, the private automobile has brought interest in new streets and highways within the scope of everyday thinking. It is obvious, however, that the constant pressure for more and wider thoroughfares which eat into land resources in congested areas, has resulted in a more intensive consideration of the whole problem of land transportation and of the laws of diminishing return which have been operative in the matter of highway costs as related to the ends to be attained in convenience, safety or time saving.

The high congestion of land travel resulting from the automobile and the sense of freedom from the encumbrances of the earth resulting from the invention of the airplane and zeppelin, have given to communities a new sphere of activity and to man and his business a greater freedom of movement and a wider scope. This is not the place to deal with the vast projects now under way. Nor do we need to emphasize the great progress that is being made daily by engineering companies and independent inventors in making flying safer, cheaper, more comfortable, faster and more generally in use for long and short distance travel and transportation.

What Will Happen When Private Airplanes Become Common?

The least imaginative of our citizens can see, even at this very early stage in the development of aerial transportation, that soon the individual airplane will become more common than it is today and will affect the life of thousands, if not millions of our people, who will make personal use of the plane for everyday transportation. When that time comes, we shall perhaps find a greater interest in the construction of proper landing places, as the plane will have given us a mental attitude as deeply personalized as the automobile has created in relation to highway construction and highway maintenance. When that time comes and the element of safety both in the air and in landing becomes more apparent and more a matter of personal concern, we shall not be thinking in terms of one landing field, but of landing fields devoted to a variety of uses and within the reach of every individual able to purchase and capable of manipulating the airplane.

Almost every progressive city in the United States is becoming airminded. Chambers of commerce, civic bodies and municipal and county organizations are wide-awake to the need for efficient airports. To what extent they are familiar with the essential requirements of this efficiency is still a moot question. City planners have from time to time been

called upon to lay out airports of various sizes and character. We have not yet advanced sufficiently, however, to have established a mass of technical knowledge which would be sufficient to deal with each local problem by the application of a few fundamental principles. Nor will the application of such principles ever be sufficient to meet every community need without a great deal of supplementary scientific investigation dealing with climatic conditions, geographic location, the efficacy of the existing community plan and the required changes, the general regional requirements, the relation to other airports and existing means of land transportation by rail, motor-bus, street car or private motor vehicle. The facts bearing on these essentials must be taken into consideration if we are to develop a technique of landing field location, construction and maintenance.

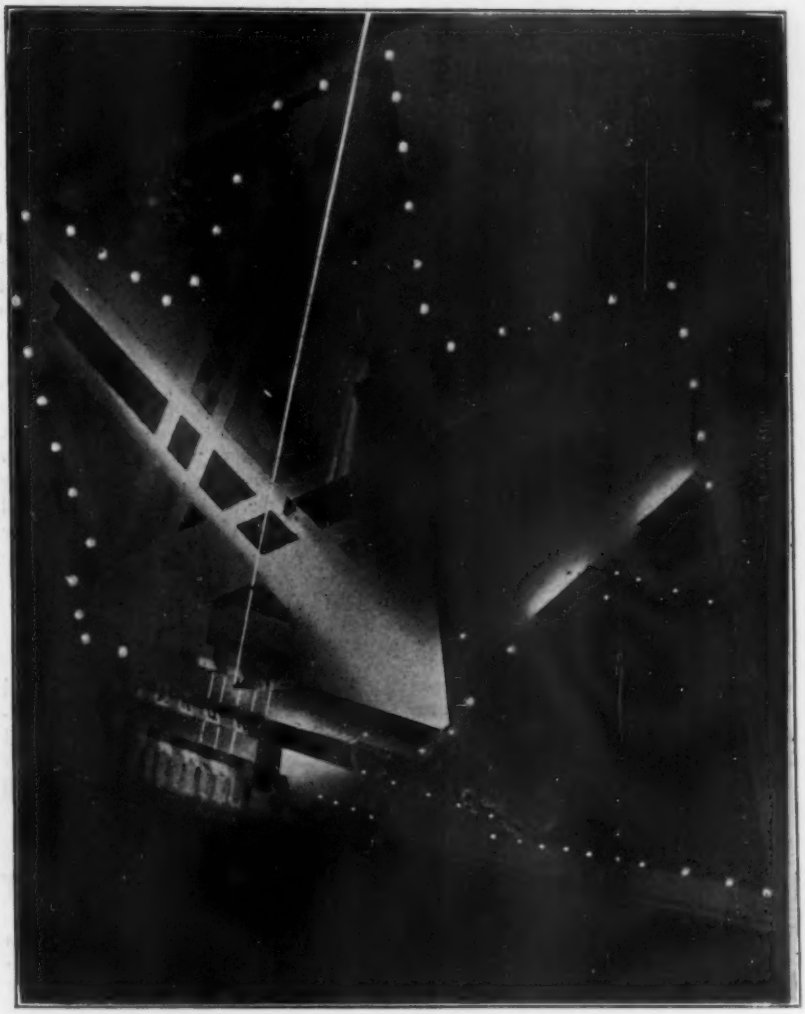
Contrasting Functions of Transcontinental and Satellite Airports

It is obvious that a landing field for a metropolitan center would have to be quite different from the landing field of a smaller community. It does not require expert knowledge to realize that express and local service will have to be differentiated in the future and that transcontinental planes will eventually be served by smaller planes for distribution of passengers to suburban and smaller satellite communities. We already realize the difference in the needs for transporting passengers from one metropolitan center to another as compared with the needs for airport facilities serving distant and inaccessible mountain resorts which may, by the use of airplanes, be brought within less than half the distance and one-fourth of the traveling time from centers of population and congestion. These are all matters that require specific studies and examination of all the social, economic and physical factors that have to do with space-time, efficiency and safety, comfort and convenience.

Every new invention that has an economic and social value so obvious and so impressive as the use of the airplane brings with it much speculative adventure and considerable loss due to haste, ignorance and conspicuously competitive waste. Private interests are not slow to realize the investment values in such enterprises, and in the case of public utilities the chances for creating monopolies are too great and tempting to allow for cool and scientific deliberation. *Even at this early stage of air transportation we can see looming the possibility for monopolies, if not in the ownership of airships, certainly in the control of airports.*

Where Shall the Airplanes Park?

What we have to contend with at the present time in providing parking and garage space for automobiles will become vastly more important and more pressing a problem in relation to the airplane when the latter becomes more general and more individual in ownership and use.



MODEL OF AN AIRPORT PLAN
A maximum of landing runways on a minimum of land is here demonstrated by Lloyd Wright, architect. (Area, 160 acres)

It is not premature to sound a note of warning against the possibilities of monopolistic management and ownership of airports which will stifle competition and retard development of air transportation. Cities, counties, states, even the nation, should take heed and take timely steps towards the acquisition and development of publicly owned airports which would be available, like municipally owned docking facilities, for all public, private and corporational uses. The communities which overlook these possibilities will not be able to reap the full benefit of the future development of air transportation.

How Large Shall the Airports Be?

The space needed for airports has been variously estimated at from 100 to 300 acres or more. This variation in size has in the past depended in most instances upon the field available and cost involved, whereas climatic conditions, visibility, prevailing winds and general surroundings play a very important part in the space required for an airport. In fact, the variation in size should largely depend upon the requirements of the community and its relation to the region and its transport requirements.

Technical knowledge as to the local requirements for each community can easily be obtained by the employment of experts versed in the planning of airports, and city planners capable of analyzing the local community in terms of accessibility, highway facilities and relation to center of population, and other factors affecting community life. It is obvious that a community which can be served by a 100-acre field would be wasting its money upon a field that is twice the required size. It is also clear that 100-acre tracts will be found available nearer to the center of population

than could a tract 300 acres in size. Every mile saved in distance between the airport and the center of population is so much saving in time—which is after all the fundamental advantage of all air transportation.

Aside from the economy in cost and time to be saved from smaller airports within easy reach of the center of population, the economy in development of smaller areas, and in transportation, and the greater efficiency of the lighting system concentrated upon such areas are considerations not to be easily dismissed.

Another important consideration in all airport acquisition and development is the matter of required take-off and landing space. The present tendency is to shorten rather than lengthen the landing and take-off runways. To be sure, there is a considerable difference in the requirements of various types of planes, but safety, economy and efficiency will eventually demand a shortening of the distances required in the handling of planes. Recent experiments with the "Autogyro" safety plane carried on by Juan de la Cierva, of Spain, and demonstrated in Philadelphia last August, give strong evidence of the possibility for take-off landing with little or no runway. It is clear, therefore, that any rash selection of airport relative to location and size, without due consideration to local needs and the broad consideration of modern methods of runway development and an eye to the future, would lead to much waste and a considerable amount of unnecessary reconstruction in the future.

It is possible at present to create efficient landing fields for certain uses on an area not to exceed 50 acres by adequate planning methods. There has of course been a great rush of work which has required a certain amount of standardization. The fact remains, however, that standardization must not come too soon in a field so overwhelmingly in its ascendency and so profoundly subject to revolutionary advancement. Only with the utmost care and study can any community be safe from the waste and mistakes that are inherent in all new mechanical devices which have so important a speculative and social value.

Need We Tolerate Ugly Architecture for Airport Buildings?

In the discussion of airports, it would be a mistake not to mention the architectural treatment of the field itself and the buildings appurtenant to all airports. The present tendency to use materials which do not lend themselves to architectural treatment, and to neglect the sightly and agreeable arrangement of the component parts of an airport, is a great error. The airplane is already assuming a design that has a fundamental character and a beauty all its own. It is quite possible to evolve out of the very mechanical nature of the airplane a style that is consistent with both the efficiency requirement of airports and the esthetic values inherent in the form and use of the plane. Our railroad stations, our gasoline stations, and our garages, in their early and still too common types, have been a reproach to the good taste of the American people. The airplane and the zeppelin have come to stay and are perhaps completing the cycle of human effort to conquer space-time. Shall we not give some thought to the land habitat of these great devices of human progress so that they may keep our esthetic sense in tune with our mechanical achievement?

The architect, the engineer, the landscape designer, the expert on light and color, should correlate their knowledge and experience and impress air transportation with the imaginative genius that a combination of the arts and the sciences are capable of producing.

A Gardening Book for Our Town

WHOEVER has felt the keenly possessive and creative urges of the true gardener at planting time, black loam sifting through his fingers; whoever has waited with all but unendurable expectancy for the living colors to blossom out in his pictorial planting experiment; he has felt, full force, the awful inadequacies of the mail-order seed catalog and the garden book out of the library. They are too impersonal and aloof! They don't speak *our* language; they don't take the peculiarities of *our* situation into consideration. They abound in descriptions and illustrations of things that won't grow in our climate; or that deport themselves quite differently here from the printed prescription. The experience exchange in the Garden Club has decided there is nothing to do about it.

Houston Fills Its Own Need

But meantime, something has been done about it in one city. Specifically, that city now has a useful, interesting, and altogether delightful book showing the endless possibilities of gardening with local factors of climate, soil, seasons, native flora, and an exceptionally high state of civic esthetic development given due regard. "A Garden Book for Houston," is the title of this inspired volume which, from its strikingly original and picturesque jacket, to its perky garden-tool endpapers, is freighted with interest and suggestiveness, for garden lovers as well as for garden makers.

This book has come out of a curious need in one city. Houston has not a limitation such as faces some other cities in the South, of sub-tropic sun that cooks all but the earliest summer growth, nor that of some northern cities where the season is too short for most flowers. In common with the whole stretch of land lying along the Texas Gulf Coast, that city has a moist, even, semi-tropical climate in which gardens flourish luxuriantly the year round, and where plants seldom seen elsewhere outside greenhouses grow casually in every garden.

An Active Civic Agency

The Forum of Civics, a Houston organization "designed to stimulate civic pride and to combine many and varied forces for the betterment and beautification of city and county," which does all kinds of practical things such as promoting the planting of street trees and giving school children shrubs, trees, and vines to take home, has financed the garden book. It regards this as one more practical means of placing in the hands of citizens and of interested neighborhood clubs knowledge for increasing the beauty of the city. Two amateur gardeners, Mrs. Card G. Elliott and Mrs. Cleveland Sewall, gave their time for fifteen months gratuitously, and other garden owners and professional gardeners collaborated wholeheartedly in the making of the book, which the Forum of Civics is selling at a nominal price of $1.35 and which at once upon its appearance became a best seller in Houston and in the section to which it applies.

What and When to Plant

For a smallish book it contains a wealth of material. The opening section is devoted to "The Circle of the Year," a 12-month planting almanac. This is followed by special articles covering every aspect of ornamental gardening for Houston, and for the section, with exceptionally fine illustrations, and with a series of planting charts. There is an illustrated piece about "Neighborhood Cooperation" in which landscape planting design for street, alley, parkway and other places is discussed as concerning a neighborhood garden club.

Among other articles are those on "Design in the Garden"; "Special Gardens," such as those planned for color, fragrance, child appeal, and for cut flowers; "Flowers that Require Special Care"; and there are discussions of window-boxes, the care of house plants, and the beauty of certain weeds.

The whole, as said before, is inspirational and suggestive. *What* it suggests is the question, Why can't our town have a garden book? And the answer is that it can if it has an organization such as the Forum of Civics to sponsor the enterprise; or if it has the equivalent in community-mindedness and concern for community beauty.

Types of Cold-Laid Asphalt Paving Mixtures

A Critical Study by an Asphalt Paving Technologist

By
GENE ABSON
CHICAGO PAVING LABORATORY,
CHICAGO, ILL.

A COLD-LAID asphalt paving mixture is, as the name implies, one which can be spread, raked and compressed cold as a pavement, that is, at normal atmospheric temperature, and which should be capable of retaining its workability for several days or weeks during transportation or storage. It may be prepared or manufactured in a cold state, or it may be prepared in a hot condition and subsequently allowed to cool. Another type, not adapted to shipment for any length of time, can be manufactured cold at the site of the paving work and used immediately, providing it does not require expensive or large plant equipment.

Classification

Cold-laid asphaltic paving mixtures may be divided into three distinct groups: (1) the type in which a volatile liquefier is used; (2) the type in which a water-external asphalt emulsion is used; (3) the type in which a very soft bitumen is used, including naturally impregnated calcareous silicous mineral aggregates.

In any of these types, the distinguishing difference is only that of so treating or preparing the bitumen that it is liquid or comparatively liquid at normal temperatures, thus enabling the mixture to be handled and compressed in the cold state. This, of course, is similar to the conditions surrounding a hot mix pavement, with this important and differentiating characteristic: in a hot mixture the hardening of the bitumen takes place with the loss of temperature, while in the cold mixture, either breaking of the emulsion, evaporation of the temporary liquefier, or rather slow hardening of a soft bitumen must take place. In the latter case there is really a subtype in which a soft bitumen with an extremely stable aggregate is used and in which no change takes place in the asphalt. This, then, leads to the important consideration of so manufacturing the composition that this physical change best takes place, and this is most generally accomplished by the use of an open mixture. In fact, except with some mixtures employing a comparatively soft bitumen, and the recent advent of self-breaking emulsions, it is imperative that the mixture be open but of such composition that stability is obtained within the mineral structure itself and that further consolidation under traffic produces a mixture which is comparatively dense.

One major exception to this rule can be cited. Cold limerock asphalt compositions, such as Uvalde and Alabama, have made very serviceable pavements, using the same mineral grading as in the hot mix types, even with the use of a naphtha liquefier. The answer here is that probably the natural stability of these mixtures permits the use of a much softer bitumen, and that even if the liquefier leaves slowly; or, if the liquefier never does entirely evaporate, the stability is still equal to the requirements of traffic. Furthermore, these rock asphalt cold mixtures are so designed as to show neither an excess of bitumen nor of liquefier. Attempts to accomplish similar results with cold laid, well-graded dense sheet asphalt or asphaltic concrete have usually proved unsatisfactory and disastrous.

Earliest Cold Mixture Type

Perhaps the earliest successful cold mixture type is that generally known as Amiesite, of which there are almost innumerable variations. Next, I would place the natural rock asphalts of the Kentucky rock type, which seems to have had its troubles with variations and patented methods of treatment. Next follow the emulsion types, and then the hot mix and water-cooled types, although the latter seem to have only a minor following.

With a background of at least twenty years of more or less proved merit, it is vain to dismiss with a gesture all pavements of the Amiesite type and say that cold-laid pavements can never be successful. This holds true also for the successfully cold-laid natural rock asphalts and emulsion pavements. When all basic principles of asphalt construction, plus those deduced in the experience of cold mixtures, are followed, it is reasonable to expect satisfactory results from these types under normal traffic conditions.

Quality and Grading of Aggregates Important

As with a hot-mixture preparation, it is important with the cold-laid mixtures that the aggregates be of good quality and properly graded, free from excessive dust and moisture, with the temperature carefully controlled, free from excesses or deficiencies of asphalt cement, and above all, that there be judicious selection of the liquefier and proper attention to curing after laying. Too little attention is given to the fundamentals involved in the use of a liquefier. In fact, some of the deviations from the basic principle of using a temporary liquefier are such as to preclude a satisfactory pavement. The basis of design in a cold mixture of this type is the use of a temporary liquefier for the asphalt, and that means a rather light, evaporable solvent, most commonly a naphtha which volatilizes in a relatively short time, leaving the asphalt in its original consistency. In a number of plants it has been common practice to use a liquefier composed of equal parts kerosene and fuel oil; and for some inexplicable reason the heavier liquefier has been used in the winter when evaporation is at the slowest. The reasons, of course, are for the sake of securing greater workability, but to relegate such an important consideration as evaporation of the liquefier to the background is rather a precarious gamble.

Emulsions

The use of emulsions in cold-mixture work has also been subject to some grievous errors in manipulation, and, likewise, there have been some exceptionally serviceable pavements constructed with different types of emulsions.

Soft Bitumen Types

The third type, that is, the one in which a soft bitumen is employed, is probably best represented by the Kentucky sandstones of varying grading, impregnated naturally with varying amounts of bitumens of various consistencies. With proper attention to the selection of strata and with judicious blending of materials from different locations for uniformity of bitumen content and freedom from unimpregnated portions, a fairly successful light traffic pavement can be obtained. With this type it is equally important that all the fundamentals of laying hot mixtures be followed, and oftentimes improvements can be accomplished by blending with other aggregate materials, particularly filler and selected sand gradings for increasing the denseness and stability of the mixture.

It appears that there is a real field for investigation and improvement in the perfection of cold mixtures, for the demand certainly is present. It is likely that cold mixtures will never be the equal of scientifically designed and proven hot mixtures, particularly under extremely heavy mixed traffic, but there is a large field for maintenance, repair and moderate traffic requirements in which cold mixtures seem to be necessary from an economic point of view.

ACKNOWLEDGMENT.—Abstract of a paper presented at the Eighth Annual Asphalt Paving Conference.

Policemen's Salaries, Hours, Etc., in 49 Cities

By THE MUNICIPAL ADMINISTRATION SERVICE

(Tables I and II, for firemen, with general text relating to all four tables, appeared last month at page 169)*

Definitions

(Following tables relate only to uniformed force.)

Patrolman: Under supervision, during a definite watch, to maintain order or detect violators of law. To patrol an assigned beat or post. To regulate traffic. To apprehend and arrest criminals and assist in their prosecution in the courts. To serve warrants and other police notices. To testify at hearings and in courts.

House sergeant: Under general supervision, to direct police work in a station house.

Street sergeant: Under general supervision, to direct in the field the work of patrolmen. To visit and inspect beats or posts. To report irregularities, accidents or unusual circumstances. To act for lieutenant in his absence.

Lieutenant: To assist in supervision and, in absence of the captain, to act as commanding officer.

Captain: Under general supervision of assistant superintendent, responsible as commanding officer of a police company for the preservation of peace and the prevention of crime, and enforcement of laws and orders in an assigned district. To protect life and property. To assign instructions and be responsible for the work of subordinates. Responsible for safety of prisoners, their apearance for trial, etc.

Assistant superintendent: Under general supervision, to assist the superintendent in the administration of the police department.

Superintendent: Administrative supervision of the police departments and responsible for maintenance of order, prevention of crime, and enforcement of laws. To designate the work of the personnel. To make all reports, and to maintain general discipline of subordinates.

Surgeon: Under general directions, to perform difficult surgical operations in the service of the police department and perform related work as required.

* Reprints of both instalments may be had from the Municipal Administration Service, 261 Broadway, New York, after April 15.

TABLE III—POLICEMEN—SALARIES

Salary rate is given by the year, month or day, as the case may be

City	Patrolmen No.	Patrolmen Rate	House Sergeant No.	House Sergeant Rate	Street Sergeant No.	Street Sergeant Rate	Lieutenant No.	Lieutenant Rate	Captain No.	Captain Rate	Surgeon No.	Surgeon Rate	Assistant Superintendent No.	Assistant Superintendent Rate	Superintendent or Chief No.	Superintendent or Chief Rate	Police Women and Matrons No.	Police Women and Matrons Rate	Miscellaneous
Knoxville, Tenn.	10[1]	$120–150	3	$165	4	$154			4	$187					1	$275	1	$150	
Schenectady, N.Y.	13[2]	1,775–2,050	15	2,200					6	2,450	1	$800	1	$2,750[1]	1	4,000[2]	1	800	[3]
Wilkes Barre, Pa.			Not Reported																
Sioux City, Iowa	48	130–145[4]	3	160	1	160[4]			3	175	3		2	200[4]	1	250[2]	1	130	
Winston-Salem, N. C.	45	120–145[5]	3	160	3	160			3	185					1	300[2]	1	150	[5]
Portland, Me.	111	5 a Day	1	2,025	6	2,025	4	2,025	3	2,380							1	1,000	
Sacramento, Calif.	98	170–200[6]	4	220	3	210[6]			3	225–250			1	275	1	350[2]			
Racine, Wis.	51	160	2	165	2	165			2	200					1	300			
Chester, Pa.	55	1,400–1,600[7]			5	1,800			3	2,000									
Terre Haute, Ind.	Not Reported																		
Springfield, Ohio	36	140	3	165	1	165	4	175							1	200[8]			
Lincoln, Nebr.	17	1,680	2	1,800			1	2,040	1	2,220	1	1,200			1	3,120[2]	2	1,200	
Berkeley, Calif.	30	180–185[10]	3	210	2	210			2	275					1	375[2]	1	200	
Niagara Falls, N. Y.	73	2,000	3	2,200	6	2,200					1	800	1	2,700	1	3,200	1	1,380	
Hoboken, N. J.	Not Reported																		
Bethlehem, Pa.	Not Reported																		
Quincy, Mass.	95	2,100			8	2,300	7	2,400	1	2,700					1	3,600			
Topeka, Kans.	31	135–155	3	160			3	175	1	2,400[11]					1	3,000[2]	3	90–100[11]	
Pasadena, Calif.	40	180–200[12]	4	225	4	225	3	250	2	275	1	350[12]			1	400[2]	2	170–190	
Pontiac, Mich.	52	2,050	2	2,200–2,600	4	2,200	4	2,400	1	2,700					1	3,800	3	2,000	
Lancaster, Pa.	42	1,500[13]	2	1,650	2	1,650	2	1,800	1	2,000							1	2,250	
Cedar Rapids, Ia.	33	145			2	150			3	165	1	100	1	175	1	205	1	90	
Oak Park, Ill.	25	2,100	3	2,350	4	2,350	3	2,750							1	4,000	1	300	
Kenosha, Wis.	50	155–165[14]	4	180	3	180	2	195	1	225			1	250	1	4,000	1	165	[15]
Atlantic City, N.J.	254	2,050–2,550			10	3,000	3	3,100	6	3,800	1	3,000	2	4,100[17]	1	5,000	1		[17]
Mt. Vernon, N. Y.	102	2,025–2,500[18]	2	3,000	5	3,000	5	3,500–3,700	1	4,300	1	1,800			1	5,000[2]			[18]
Springfield, Mo.	Not Reported																		
Columbia, S. C.	80	125	3	138	3	138	1	150							1	250[2]			
Madison, Wis.	50	150					2	173	2	188					1	275	2	150	
Elmira, N. Y.	45	1,800	1	1,800	2	1,800	2	1,980	1	2,340			1	2,280[17]	1	2,900[2]			
Bay City, Mich.	33	135	1	145[21]					1	187					1	200	1	1,500	
New Rochelle, N. Y.	91	1,920–2,500			7	2,000	5	3,300	3	3,700	1	[22]			1	4,800[2]	1		[22]
Jamestown, N. Y.	42	160					7	170	1	185					1	2,600[2]	1	120	[23]
Brookline, Mass.	102	1,991–2,190			9	2,300	3	2,800							1	4,250[2]	1	300	
San Jose, Calif.	34	160–180							2	205					1	350[2]	1	165	
Austin, Texas	20	130	2	135					2	160					1	250[2]			[24]
Hamilton, Ohio	33	1,800	3	1,860					1	1,920					1	3,000[2]	1	1,620	
Stamford, Conn.	55	1,800–2,200[25]	3	2,500	3	2,400	1	2,730	1	3,700					1	4,500[2]	1	1,550[25]	
Rock Island, Ill.	11	1,560	2	1,560			1	1,860	1	1,860					1	2,400			[27]
Dubuque, Iowa	27	140	3	145					3	155					1	250[2]	2	90–100	[28]
Wichita Falls, Texas		145		165		175				225									[29]
Superior, Wis.	30	145–160	2	170	4	170	1	218			1	[30]	1	230	1	265[2]	1	138	
Wilmington, N. C.	33	4.00	1	5.00	6	5.00	2	1,800	1	1,860					1	2,400[2]	1	820[31]	
Lynchburg, Va.	48	143	3	148	3	160	3	165	1	175	1	[31]	1	175	1	225			
Waterloo, Iowa	17	130–140[32]	3	145					3	160					1	225[2]	1	130	[33]
Moline, Ill.	17	130	2	140					1	145					1	167	1	75	
Sheboygan, Wis.	20	145	1	165	1	160	1	170	1	175					1	235[2]			
Oshkosh, Wis.	40	1,620–1,740					1	1,740	1	1,800			1	1,920	1	2,520			
LaCrosse, Wis.	30	1,780	1	1,915	1	1,915	1	1,915	1	1,980	1	1,400			1	2,700			

(*Footnotes refer both to Table III and Table IV.*)

[1] Called deputy chief.

[2] Called chief.

[3] Salaries: 1 finger-print expert, $2,300. No set hours for captain, surgeon, superintendent and assistant superintendent.
Equipment includes revolvers, whistles, flash lights, etc., furnished to all members of force as needed.
Drivers, motorcycle men and foot patrolmen furnished sheepskin overcoats.
Vacation: Sergeants, 17 days; captain, surgeon and deputy chief, 20 days; chief, 25 days.
Other Leave: Only for death of member of immediate family.

[4] Salaries: Patrolmen, $130, first year; $140, second year; $145, third year.

[5] Salaries: Patrolmen, $120, first 6 months; $130, second 6 months; $140, first to third years; $145 thereafter.
Miscellaneous: 14 motorcycle officers at $150.
Clothing value of $4,500, total budget, 85 men.

[6] Salaries: Patrolmen, $170, first year; $180, second year; $190, third year; $200, fourth year.
Street sergeants are called corporals.
Assistant superintendent is called inspector.

[7] Salaries: Patrolmen, $1,400, first year; $1,500, second year; $1,600, thereafter.

[8] Called director of police.

[9] Surgeon is city physician also.
Hours: Chief, 10 per day.

[10] Salaries: Patrolmen, $160, first 2 years; $165, next 2 years; $170, fifth and sixth years; $175, seventh and eighth years; $185 maximum after 10 years.
Fuel, and allowances for automobiles used in course of duty are granted as follows: patrolmen, $40 per month; sergeants and inspectors, $50 per month.
Pensions: 20 years of service, and age 60, half pay; 25 years of service, and age 55, half pay; 30 years of service, and age 60, two-thirds pay.
Pension Dues: covered by state law. "Certain percentages of certain fines, certain license fees, etc., pay the city cost per man."
Relief Fund: Group insurance, ranging from $1,000 to $3,000, according to salary earned.
Premiums, $1.22 per month per employee.
Sick leave: 10 days, less than 1 year's service; 30 days, 1-5 years' service; 45 days, 5-10 years; 60 days, 10-15 years; 90 days, over 15 years.
Additional special leave of 3 to 10 days granted in case of death of member of immediate family.

[11] No captain at present. Salary given is that paid when office is filled.
No policewomen. Two "welfare women" and one matron.
Death benefit: $40 per month to widows of policemen who die after retirement.

[12] Salaries: Patrolmen, $180, first year; $190, second year; $200 thereafter; motorcycle officers: $200, first year; $210, second year; $220 thereafter.
Hours: 4 days off each month.
Surgeon: Also two part-time surgeons at $100.

(*Footnotes continued on next page*)

TABLE IV—POLICEMEN—CONDITIONS OF EMPLOYMENT

City	Hours on Duty: Day (D, day; N, night)	Hours on Duty: Week	Annual Clothing Allowance	Estimated Value of Uniforms Furnished	Reimbursement for Clothes Ruined on Duty	Pension System	Annual Pension Dues	Relief Fund for Death Benefits	Annual Relief Fund Dues	Annual Sick Leave with Pay	Annual Vacations with Pay	Other Leave with Pay per Year
Knoxville, Tenn.	8	56	None	None	None	Yes	None	No	None	None	15 days	None
Schenectady, N. Y.	8[1]	48	Equipment[1]	$135	Full	Yes	1½% of salary	Yes	$6	Full pay	15 days[2]	[2]
Wilkes-Barre, Pa.	Not Reported											
Sioux City, Iowa.	8	56	None	None	None	Yes	1% of salary	No	None	None, but do allow it	16 days	None
Winston-Salem, N. C.	8	56	Uniform	[3]	Repaired or renewed	Group	Insurance	Group	insurance	Covered by Doctor's certificate	10 days	
Portland, Me.	8	56	None	None	None	Yes	None	Yes	$8	90 days in three years	14 days	1 day in 15
Sacramento, Calif.	8	48	None	None	None	Yes	None	Yes	$12	30 days	14 days	
Racine, Wis.	8	56	None	None	None	Yes	1% of salary	No		Full pay	15 days	1 day in 8
Chester, Pa.	8	56	Complete summer suit; overcoat every 2 years	$55	Repaired or renewed	No	None	No	None	No limit	10 days	
Terre Haute, Ind.	Not Reported											
Springfield, Ohio.	8–12		None	None	None	Yes	None			6 months, half pay	15 days	52 days
Lincoln, Nebr.	12[9]	72	All except trousers and shoes	What is needed	Replace fully	No		No		14 days	15 days	52 days
Berkeley, Calif.	8	48	None	None	None	Yes[10]	[10]	Group	insurance[10]	[10]	14 days	52 days[10]
Niagara Falls, N. Y.	8	56	None	None	Full	Yes	1% of salary	No		14 weeks	14 days	1 day in 13
Hoboken, N. J.	Not Reported											
Bethlehem, Pa.	Not Reported											
Quincy, Mass.	10 2 7-hour night shifts		None	None	Yes	Yes	None	Departmental Association	$4	9 weeks	14 days	46 days
Topeka, Kans.	8	56	None	None	None	Yes	$12	Yes[11]		No limit	2 weeks	None
Pasadena, Calif.	8	[12]	None	None	None	Yes	None	Yes	$6	30 days, half pay	15 days	48 days
Pontiac, Mich.	8	48	None	None	Replaced by city	No	None	No		30 days	15 days	None
Lancaster, Pa.	10[13]	[13]	$60		Full	Yes	$9	Yes	[13]	10 days	7 days	[13]
Cedar Rapids, Iowa.	8	48	None	None	None	Yes	1% of salary	No[14]	None	Indefinite	10 days	Occasional
Oak Park, Ill.	8½[15]	59½	None	None	None	Yes	1% of salary	Death benefit	$2 to join $2 for each death	Unlimited	15 days	28 days
Kenosha, Wis.	8		None	None	None	Yes	1% of salary			Indefinite	14 days	None
Atlantic City, N. J.	8	48	$50		None	Yes	2% of salary	Yes	$6	Unlimited	21 days[17]	52 days
Mt. Vernon, N. Y.	8[18]		None	None	Yes	Yes	2% of salary	[16]	$6	Full time	14 days[16]	1 day in 10
Springfield, Mo.	Not Reported											
Columbia, S. C.	8	56[19]	Uniform	$60[19]	None	No		No		No definite limit	15 days	None
Madison, Wis.	9	54	None	None	None	Yes	1% of salary	No		26 days	14 days	12 days
Elmira, N. Y.	8[20]		None	None	None	Yes	1% of salary	No		60 days	14 days	13 days
Bay City, Mich.	8[21]	56	None	None	None	Yes	None	Yes	$5	Full pay	15 days[21]	None
New Rochelle, N. Y.	8	[22]	None	None	Reimbursed	Yes	2% of salary			[23]	16 days	[22]
Jamestown, N. Y.	11 D[23], 10 N	66 D[23], 60 N	None	None	None	Yes	2% of salary	No		Indefinite	15 days	None
Brookline, Mass.	10[24]	60	Traffic officers only		Full	Yes	Non-contributory	Yes	$5	Indefinite	14 days	1 day in 8
San Jose, Calif.	8	48	None	None	None	Yes	1% of salary	Yes	$6	20 days	15 days	52 days
Austin, Texas.	8	56	None	None	None	No		No		30 days	15 days	2 days per month
Hamilton, Ohio.	8[25]		1 Uniform	$70	None	Yes	State pays	Yes	$12	In judgment of chief	10 days	None
Stamford, Conn.	8[26]		Uniform and equipment	$150	Pays for repairs	Yes	1% of salary	No		Unlimited	10 days[26]	36 days[26]
Rock Island, Ill.	11[27]	77	$60	[27]	None	Yes	1% of salary	No		Full pay	15 days	45 days
Dubuque, Iowa.	8	48	None		None	Yes[28]	1% of salary	[28]		Half pay	15 days	1 day in 7
Wichita Falls, Texas.	12	84	None		None	No		Yes	$12	15 days	10 days	None
Superior, Wis.	8[29]	56	Summer caps furnished	None	None	Yes	1% of salary	Blanket insurance	$7.20	No limit	14 days	1 day in 8, in summer
Wilmington, N. C.	9	63	2 suits yearly	$60	None	Yes	$6[30]	Insurance	$7.20[30]	Full time	10 days	None
Lynchburg, Va.	8	56	$30		None	Yes[31]		Yes[31]	$6	None	2 weeks	12 days
Waterloo, Iowa.	8[32]	56	None	None	None	Yes[32]	1% of salary	No		[32]	15 days	None
Moline, Ill.	12[34]	84	$60		None	Yes	1% of salary	No		Full pay	15 days	1 day in 8
Sheboygan, Wis.	8	51	None	None[34]	None	Yes	$17.40[34]	No		None	15 days[34]	45 days[34]
Oshkosh, Wis.	9	63	None		None	Yes	1% of salary	Yes	$3		10 days	1 day in 8
LaCrosse, Wis.	9	63	None		Paid by city	Yes	1% of salary	No		60 days	15 days	46 days

(*Continued from preceding page*)

[1] Salaries increase $5 per month after two years, and $10 per month after four and six years, throughout force.
Hours: Sergeants and lieutenants, 12 hours, off every sixth day. Patrolmen off every eighth day, captain, 10 hours, off every sixth day.
Pension and relief funds are joint funds.

[3] Patrolmen carry $5,000 insurance, of which city pays 60 per cent and men 40 per cent.

[5] Hours: House sergeant, 8 per day, 56 per week.

[6] Salaries: Patrolmen, $155, first year; $160, second year; $165 thereafter.
Miscellaneous: 1 sergeant at $180; 5 patrol-wagon drivers at $165.

[7] Assistant superintendent is called inspector.
Miscellaneous: 3 corporals at $2,900.
Vacations: Sergeants and surgeon, 24 days; lieutenants, 25 days; captain, 26 days; inspectors, 28 days; chief, 30 days.

[8] Salaries: Patrolmen, $2,025, first year; $2,175, second year; $2,325, third year; $2,500 thereafter.
Miscellaneous: 1 ordinance officer at $2,720; 2 patrolwagon drivers at $2,600; 1 court officer at $2,620.
Hours: Captain, surgeon, and chief subject to call.
Relief Fund: Mutual benefit organization.
Vacations: Sergeants, 20 days; lieutenants, 21 days; captain, 25 days; chief, 30 days.

[9] Hours of lieutenant and chief not fixed.
Value of uniform for sergeant is $70, and for lieutenant chief $80.

[10] Hours: Lieutenants, 9 per day; captain, 10.

[11] Sergeants designated simply as "sergeant," not house, desk, street, etc.
Hours and vacation of superintendent at his discretion.

[12] Surgeon and matron on call. Surgeon apparently paid fee also.
Miscellaneous: 2 traffic sergeants at $2,900.
Sick Leave: Half-time, first 5 days, full time thereafter.
Patrolmen change beat every 7 days; sergeants every 5, off every sixth day; lieutenants change every 4 days, except desk lieutenant, who changes every 10 days and works outside in turn.

[13] Salaries: 1 court lieutenant, $170.
Hours: Captain, 10 hours per day, 60 per week; court lieutenant, 8 per day, 48 per week; chief, at his discretion.

[14] Night man, 2 platoons, 7 hours each.

[15] Hours: Chief, on duty 14 to 16 hours per day.

[16] Salaries: Patrolmen, $1,800, first year; $2,000, second year; $2,200, third year.
Matron also acts as secretary.
Hours: Captain and lieutenant have no definite hours of duty, but must serve at least 8 hours per day.
Vacations: Chief and captain, 3 weeks.
Other leave: Apportioned monthly, 3 days per month.

[17] Salaries: 2 motorcycle officers at $1,560.
Hours: Sergeant, lieutenant and captain, 12 per day and 84 per week.
Clothing allowance: Turned over to officer who purchases own uniform, at cost of $75-$100 per year; officer pays difference.

[18] Salaries: 2 motorcycle offices at $150.
Pension: Retire on half pay after 22 years' service.
Death benefit: Widows pensioned, $30 per month.

[19] Surgeon paid by fee.
Hours: Chief, about 9 per day.

[20] Policewoman: Half-time.
Pension dues: Sergeants, lieutenants and captain, $9; chief, $12.
Relief fund dues: $7.50 for all members of force other than patrolmen.

[21] Surgeon apparently paid by fee.
Pension system: Half pay.
Sickness benefit fund pays $2 per day after first week.

[22] Salaries: Patrolmen, $130, first year; $135, second year; $140, third year.
Miscellaneous: 3 patrol-wagon drivers at $140.
Chief has no set hours and is not under pension system.
Sick Leave: Optional with mayor and council.

[23] Chief on duty about 10 hours per day.

[24] Motorcycle officers receive uniform to value of $18.
Pension dues: Street sergeant, $19.20; house sergeant, $19.80; lieutenant, $20.40; captain, $21; chief, $28.20.
Vacation and days off, indefinite for chief.

[25] Salaries: 7 motorcycle officers at $130, 1 motorcycle sergeant, $135.

[26] Salaries: 1 motorcycle officer, $170.

Street-Lighting Accomplishments in Cleveland

By HOWELL WRIGHT
DIRECTOR OF PUBLIC UTILITIES, CLEVELAND, OHIO

FIG. 1.—THIRTY-FOOT COMBINATION LIGHTING AND TROLLEY-POLE STANDARDS RECENTLY INSTALLED IN DOWNTOWN CLEVELAND

DURING the past five years the city of Cleveland has made rapid progress in the development of an extensive and efficient street-lighting system. When the city manager administration went into office on January 1, 1924, only the principal business streets boasted of ornamental lighting. At that time the city had 4,000 50-candlepower gas lamps and 10,000 electric lamps ranging from 400 to 1,500 cp. The majority of the electric lights were hung in the center of the street from wood poles. Many of these were arc lights. Less than 1,500 "white way" lights were in service.

Since that time the city has taken advantage of the most important advances in the street-lighting field and has been guided accordingly in planning new installations. It has been the ideal of the administration to make the streets of the city brighter, safer, and more beautiful. This has been accomplished largely through greater lamp mounting heights, increased candlepower per lamp, twin-light standards for principal streets, and the use of combined ornamental trolley poles and lighting standards.

More Light, Less Crime

The benefits to the city from modern white-way lighting have been far-reaching. In their relation to the Police Department, many interesting statistics have been compiled. Increase in such crimes as assaults, hold-ups, store robberies, automobile stealing, etc., led the Cleveland Police Department to make a survey of the crime situation several years ago, covering both the city as a whole and the white-way district. It was found that 90 per cent of such crimes took place after dark; that in the area outside the white-way district there was an increase of 95 per cent over the previous year, and an increase of only 15 per cent in that district. To put it another way, crimes in the newly lighted business sections were only a small percentage of what would be expected if no change had been made in the lighting.

Superior Avenue is a striking example of how better lighting has lessened accidents. In one year, traffic claimed eight lives on this poorly lighted thoroughfare. Then white-way lighting was installed. Fatal traffic accidents were cut 60 per cent, and more vehicles made better time with greater ease.

Municipal Plant Plays Dominant Part

The municipal electric light plant, which was put into operation in 1914, has been an important factor in Cleveland's lighting program. Not only from a financial standpoint, but in planning and engineering new installations, the municipal plant has been the guiding hand. Wherever possible, current for the street lights is supplied by the municipal plant. Since the total night load is only a little over half of the daytime load, the municipal plant is in a position to almost double it through additional street-lighting service without seriously interfering with any other load. Approximately 18 per cent of the current generated by the municipal plant is used for street lighting. The city also furnishes current for 163 traffic signals and 26 safety lanes.

As a rule, in white-way installations, the cost of the underground system is borne by the municipal plant, and the cost of standards and lamps is assessed against abutting property. Through the years, the plant has become an increasing and dominant force in street lighting, and it will so continue.

Two achievements of the year 1929 are particularly noteworthy. On October 21, the eve of Light's Golden Jubilee, the new installation on Euclid Avenue, from the Public Square to East

FIG. 2.—ORNAMENTAL RESIDENTIAL STANDARD NOW BEING INSTALLED

FIG. 3.—OLD TYPE OF GAS-LIGHT STANDARD THAT IS BEING REPLACED

22nd Street, was turned on. This installation consists of 126 ornamental twin-light standards 30 feet in height (Fig. 1). The late Charles H. Brush, inventor of the arc light, had officially turned on the lights on 82 similar standards on the Public Square a year previous to this date.

On Euclid Avenue the standards are spaced 95 feet apart, and opposite each other. Westinghouse units are used with 2,000-cp. lamps, inside-ripple-finish globes. As the lamps are 28 feet 10 inches above the street, buildings, sidewalks and pavement are flooded with an even, uniform, daylight brilliance. The absence of glare and spotty illumination is one of the outstanding features of this installation.

Lighting Standards Perform Many Duties

In addition to supporting the lighting units, these standards carry the railway feeder lines, trolley span wires, traffic signal lights, and street signs. In order to support the load of the span wires, an unusually strong standard was necessary. The heavy-duty-type fluted steel pole manufactured by the Union Metal

FIG. 5.—FLUTED STEEL ORNAMENTAL TROLLEY POLE EQUIPPED WITH LIGHTING BRACKET

Manufacturing Co. was selected for this service. The foundations are of a new type developed by that company and the Cleveland Railway Co. and consist of a heavy "H" beam anchored in concrete. The bases of the standards are bolted to ship channels welded on this beam. The adoption of combination lighting and trolley poles permitted the removal of the tubular steel poles previously used by the railway company. With all street electrical services combined on this one set of poles, the street appearance has been greatly improved.

The standards used on the Public Square are of the same type and size.

FIG. 4.—EIGHTEEN-FOOT UNION METAL WHITE-WAY STANDARDS EMPLOYED IN DOWNTOWN BUSINESS STREETS

These are equipped with General Electric lighting units and 1,500- or 3,000-cp. lamps, according to location.

No less noteworthy was the installation of over 4,000 fluted steel ornamental standards in the residential districts. The new 14-foot standards (Fig. 2) supplant the gas lights (Fig. 3), which had seen many years of service, and present a striking contrast to the obsolete type. After nightfall the difference in street appearance is even more remarkable. The gas lights were 50-cp., whereas the new units carry 250- or 400-cp. incandescent lamps and provide extremely effective illumination. The cost of the new equipment, including underground work, equipment and installation, was borne entirely by the municipal electric light plant. The cost to taxpayers for electric current for these lights is less than the cost of lighting the streets with gas lamps, despite the fact that the candlepower has been increased more than 500 per cent. This is only the beginning of a type of lighting to be installed eventually on all residential streets in the city.

Cleveland now has over 23,000 street lights in daily service. More than 16,000 of these are served by the municipal electric light plant—four times the number appearing on the records five years ago. Approximately 7,000 lamps of the overhead type are served by the Cleveland Electric Illuminating Co. The entire lighting system is maintained by the American Street Lighting Co., of Cleveland, subsidiary of the Welsbach Street Lighting Co., of Philadelphia.

Uniformity and Distinctiveness

Since the beginning of the city manager administration, it has been the plan of the city to keep the lighting system as uniform as possible. Standards used for various purposes and ranging widely in height have the same general design. The lantern-type standard (Fig. 4) was designed for the city of Cleveland and has proved so popular that it has been installed in all parts of the country. The so-called "Cleveland lantern" is a product of The Union Metal Manufacturing Co. and is now manufactured by both the General Electric Co. and the Westinghouse Electric & Manufacturing Co.

Practically all the main business streets of the city are now served with white-way lighting. As a rule, 18-foot standards (Fig. 4) with 1,000- to 2,500-cp. lamps are used. During the last two

FIG. 6.—TYPE OF STANDARD INSTALLED ON PARKWAYS AND BOULEVARDS

years several installations of ornamental trolley poles equipped with lighting brackets (Fig. 5) have been made. Over 400 of these are used jointly by the city and the Cleveland Railway Co.

The parks and boulevards are illuminated largely by a special parkway standard (Fig. 6) developed by The Union Metal Manufacturing Co. for the city of Cleveland. More than 1,000 standards are required to efficiently light the parks and boulevards of the city.

While there is still room for improvement in the lighting in several sections of the city, the accomplishments of the past five years have met with approval from both citizens and lighting experts. The help that better lighting has given to the police force, the Fire Department and the street railway, and the way in which it has lessened crime and accidents, have been particularly gratifying.

STREET LIGHTS SERVED BY THE CLEVELAND MUNICIPAL ELECTRIC LIGHT PLANT—JANUARY 1, 1930*

Use	Type of Pole	Height to Light Source	Number Lamps	Candle-power	Total Candle-power	Increase Since Jan. 1, 1924: Number	Increase Since Jan. 1, 1924: Candle-power
Public Square	Fluted steel trolley and light pole	28'-10"	96	3,000	288,000	96	288,000
		28'-10"	68	1,500	102,000	68	102,000
Principal business streets (extra wide—heavy traffic)	Fluted steel	18'	233	2,500	582,500	233	582,500
	Fluted steel trolley and light pole	28'-10"	250	2,000	500,000	250	500,000
Main business streets (heavy traffic)	Fluted steel trolley and light pole	18'	98	1,500	147,000	98	147,000
	Fluted steel	15'-6" & 18'	819	1,500	1,228,500	327	490,500
Main business streets	Fluted steel	15'-6"	4,541	1,000	4,541,000	3,542	3,542,000
Secondary business streets	Trolley pole	19'	954	1,000	954,000	954	954,000
	Wood pole	19' overhead	88	1,000	88,000	88	88,000
	Fluted steel trolley pole	18'	79	1,000	79,000	79	79,000
	Trolley pole	19'	123	600	73,800	123	73,800
Residence and manufacturing streets	Wood pole	20' overhead	3,212	600	1,927,200	1,555	933,000
	Arc lights on wood pole	20' approx.	212	600	127,200	737‡	442,200‡
Residential streets	Fluted steel	13'-6"	4,035	250	1,016,250	4,035	1,016,250
Residence streets and secondary park drives	Cast iron pole†	13'	503†	250	127,250	509†	127,250
Parks and main roads	Fluted steel	18'	175	600	105,000	7‡	4,200‡
Parks, main drives	Fluted steel	18'	227	1,000	227,000	227	227,000
Boulevards, parks, city buildings, bridges, etc.	Miscellaneous	Misc.	102	Misc.	51,750	67	35,750
Totals			15,851		12,165,450	11,537	8,739,850

* In addition to the lights listed on this chart, approximately 7,033 overhead lights are in use served by the Cleveland Electric Illuminating Co. † Old type of gas light standards equipped with ornamental electric unit. ‡ Decrease.

Supreme Court Furthers State Determination of Policy in Park District Case

THE first opinion rendered by Chief Justice Hughes since his recent reappointment to the United States Supreme Court, had to do with two suits attacking the validity of the Ohio park district act, and of a part of the state constitution. The suits were unsuccessful on both points and Mr. Hughes took occasion to reaffirm a sound principle of federal non-interference, saying, "It is not for this court to intervene to protect the citizens of the state from the consequences of its policy, if the state has not disregarded the requirements of the Federal Constitution." Decision was rendered March 12.

Both suits were brought by taxpayers; they related respectively to the Akron and the Cleveland Districts, the statute under which these were created being attacked as contrary to both the state and Federal constitutions. The lower state courts sustained the statute; the state Supreme Court was divided, five justices holding that the statute was invalid, and two that it was valid; but as the Ohio constitution permits only one dissenting vote in declaring an act unconstitutional, the statute was not overthrown. Appeal was then taken to the United States Supreme Court. The case is designated *State of Ohio ex rel. E. H. Bryant et al, v. Akron Metropolitan Park District, et al.*

The statute was attacked, under the Fourteenth Amendment, with regard to the organization and powers of the park district boards, which are appointed by the probate judge of the country, who also establishes the park districts, upon petition and hearings. The boards have power to create and develop parkways, parks and other reservations.

The board is authorized to levy taxes not to exceed one-tenth of one mill per dollar of assessed valuation, annually, with additional levies, if approved by the electors; to lay special assessments, issue bonds, adopt regulations for good order in the parks, and so forth. The plaintiffs had claimed that these provisions involved an unconstitutional delegation of legislative power; but Justice Hughes held that, under repeated decisions of the Supreme Court, no substantial Federal question was presented.

As to the provision of the Ohio constitution, preventing the state Supreme Court from declaring a law unconstitutional if more than one justice dissents, which was attacked as denying due process of law and equal protection of the laws, under the Fourteenth Amendment, and as being contrary to a republican form of government, the decision said, "As to the guaranty to every state of a republican form of government (Sec. 4, Art. IV), it is well settled that the questions arising under it are political, not judicial in character and thus are for the consideration of the Congress and not the courts." The relation to the Fourteenth Amendment was dismissed as insufficient; and the remark was made, "The state has a wide discretion in respect to establishing its systems of courts and distributing their jurisdiction."

A City-Manager Charter by Evolution : Not Upheaval

PERHAPS the most common reason for adoption of city-manager charters throughout the United States has been the dissatisfaction of groups of representative citizens with unprogressive or inefficient municipal administration in their respective communities. An interesting exception is reported from Dover, Del., where a city-manager charter, approved by the 1929 Delaware legislature, and now in force, was drafted to empower legally a manager who was already virtually doing the job.

Up to 1927, the municipally-owned electric plant was operating at a loss. It was obsolete. There was no money for renovating it. But the city, which has for the past six years had a wide-awake and progressive City Council, employed a new Light and Water Department manager, L. D. Shank. Upon his recommendations, steam turbines were installed and all equipment was modernized, money being borrowed for the purpose. The plant began to show immediate profit. This amounted to $50,000 last year, and there was an accompanying reduction of nearly 50 per cent in rates, with service at as high a standard of efficiency as is considered possible. The water system is also reported to be functioning on a satisfactory basis, providing plenty of pure water, and showing a profit.

The Council turned the tax collector's job over to Mr. Shank. Other departments were turned to him one by one, some by ordinance, some otherwise, until he was practically managing the city's business. White Way lighting has been installed on several streets. About 6 miles of amiesite and other hard-surface streets have been laid, making nearly 27 miles of hard-paved streets for the city, which has now been almost 100 per cent equipped with sewage facilities. Of course, legal titles could not be transferred by the municipal officials, nor could responsibility for signing contracts and other legal papers be given to the manager by ordinance. But the large number of improvements that were effected with no raise in taxes; the lowering of utility rates and increase in service; improved streets and sanitation; and generally improved appearance of the city, resulted in sentiment on the part of municipal officials and citizens leading to legislation that has now placed affairs on a permanent business basis, with the title of City Manager for Mr. Shank.

The "Cincinnati Plan of Stabilizing Employment" at Work in an Unemployment Emergency

By C. O. SHERRILL

CITY MANAGER, CINCINNATI, OHIO

When employment began to slacken in Cincinnati last fall, that city was fortunate in having already functioning a Permanent Committee on Stabilizing Employment, which had been organized early in 1929 at the suggestion of the City Manager and with the active cooperation of the Director of Public Welfare.

At the request of this magazine, Colonel Sherrill has now written the accompanying article, in which he outlines the service which this Committee has been able to render to the people of Cincinnati during the present unemployment emergency. The movement is one which should have far-reaching value through the adoption of similar ideas by other governmental units throughout the United States, many of whose officials have already expressed great interest in the Cincinnati plan.

OVER a year ago the municipal government of Cincinnati decided that intelligent planning should precede the next unemployment emergency that the city had to face. This decision resulted in the appointment by the City Manager of a Permanent Committee on Stabilizing Employment. The purposes of this committee are to study the problem of employment stabilization and to create machinery to handle an unemployment emergency should one arise.*

Serving on the committee are men widely representative of the business, governmental, and social service forces of the community. The sub-committees appointed concern themselves with the State City Employment Exchange, Continuous Employment, Temporary Employment, Public Works, Cooperation of Social Agencies, Budget and Finance, State and National Cooperation, Transients, Fact Finding and Publicity and Education.

Prompt Action When Unemployment Began to Threaten

Each of these sub-committees has a separate and distinct function and works as a unit, but the work of the General Permanent Committee is coordinated through the Department of Public Welfare, whose head is Fred K. Hackler, the outstanding man of the city on social problems. It will be noted that several of the sub-committees are such that they would function particularly during or pending an unemployment emergency. The Fact Finding sub-committee discovered in the latter part of September and October that there was a particular decline in the employed group of certain of the industries of Cincinnati. This decline was accelerated during November, and it was then that the various committees concerned themselves with meeting an unemployment emergency which by this time was quite in evidence.

The Sub-committee on Continuous Employment worked to secure the acceptance by industry of the principle of providing work for as many as possible at reduced hours or by a plan of staggering employment so that it would not be necessary to lay off such a large percentage of their men. This principle was accepted by many concerns in Cincinnati and has helped to prevent a more serious unemployment situation in this city. Several large firms had previously accepted the principle of stabilizing employment and had clear and definite plans of continuous work for those whom they employed.

Greater Public Works Activity by City and County Than Ever Before

The Committee urged city, county, and state governments to begin immediately on such public work as was practicable at that time. The result was that never before in the history of Cincinnati and Hamilton County had so much been accomplished in public work as during this winter period. The County Commissioners of Hamilton County carried out an extensive program of improvement, and the City Manager of Cincinnati kept his various departments busy with all the jobs that could be accomplished during the winter months. A special plan for heating concrete was devised by which construction on one of the large boulevards was continued through the winter. The adjoining cities in Kentucky and Ohio united their efforts and used a large number of men in public work.

The Sub-committee on Temporary Employment, which numbers nearly one hundred individuals, representative of various community groups and civic organizations in the city, set out immediately to secure a large number of temporary jobs. This relieved, in a small measure, the seriousness of the early days of the unemployment emergency. Following this, an industrial relief program was set up. This program provided necessary but non-competitive labor in public and semi-public institutions on useful and necessary work for the heads of families where unemployment resulted in request for relief. The expense of carrying this relief program was borne largely by the Department of Public Welfare with the help of the Community Chest. In this program more than five hundred heads of families were provided work each week at a fair hourly rate and for a number of hours sufficient to maintain their families in the necessities of life. Such work as was provided was of the type which needed to be carried on, but for which the agencies and departments did not have funds. It was in no way competitive with regular employment, and the jobs could not have been handled without such a relief program set up by the Department of Public Welfare and the Community Chest.

Social Agencies and Public Welfare Department Cooperate

The Sub-committee on Cooperation with Social Agencies was functioning all the time, receiving calls from the unemployed, sorting out those who were able to be cared for under the industrial relief plan and referring to the social agencies those where unemployment was only

* The set-up of the Committee and its various sub-committees, which had been appointed while business was still booming, was outlined in THE AMERICAN CITY for July, 1929 (page 110), in an article entitled "Unemployment a Soluble Problem—and a Municipal Responsibility."

one of the problems resulting in the need for relief.

The Committee on Transients, working through the Transient Service Bureau of the Department of Public Welfare, kept close touch with the drifters or transients coming into Cincinnati, and was able to inform them on employment conditions here and, by social treatment, handle their cases as a separate problem from the general unemployment issue facing the community.

In the opinion of those closest to the industrial situation in Cincinnati, the City Manager's Committee on Stabilizing Employment has had a very definite part in reducing the seriousness of the unemployment emergency which came to this, as well as other cities, during the past few months. The general program of education, and the constant reminder to all industrial concerns in the community of the seriousness of the economic loss involved in unemployment, kept a number of employers from laying off men when it was possible to keep those men employed if only on part time. It was found that with the reduction of hours or the staggering of employment, many were able to secure sufficient money to carry their families over this period of depression. The general educational program carried on by this committee also secured the cooperation of householders on governmental units in providing work while industrial jobs were scarce. The improvement in and the increased prestige of the State City Employment Bureau in Cincinnati has enabled that agency to have a greater part in the placement of the unemployed than they have ever had before. Citizens and business houses have been kept informed as to actual facts and conditions concerning unemployment, and there has been no attempt either to exaggerate or to minimize the condition in the employment field.

Great Increase in Relief Expenditures and in Unemployment Reported by Charity Societies

A TREMENDOUS strain on the financial resources and staffs of charity and family welfare societies has accompanied the current unemployment situation, it is revealed in an analysis of the experience of such organizations in more than 60 cities, made public on March 17 by the Family Welfare Association of America, a federation of 234 charity and family welfare agencies.

Analyzing data secured from a questionnaire on unemployment sent to its member agencies in 100 cities, this association found that 54 agencies reported a 100 per cent increase in expenditures for the immediate relief of distress among the families they were called on to help during January, 1930, as compared to January, 1929.

A 200 Per Cent Increase

Statistics from agencies in 32 cities reporting to the Family Welfare Association show an increase of 200 per cent in the number of families in which "unemployment due to lack of work" was a factor in the families' need of the help of a welfare society during January, 1930, as compared to the corresponding month of the previous year. In January, 1929, 32 agencies found that 7,300 of the families or single persons they were seeking to help or rehabilitate presented "unemployment due to lack of work"; by December, 1929, this number had risen to 17,000 and at the close of January, 1930, it had mounted to 21,600.

In making these figures public, Mrs. John M. Glenn, President of this Association, pointed out that they relate only to families in which unemployment was due to lack of work rather than to the inability of the persons concerned to engage in work. "There are always in every community," Mrs. Glenn said, "a large number of persons known as 'unemployables' because through certain physical, mental, or social handicaps they are unable to secure or retain employment. Persons definitely in this group or on the border line—that is, persons whose working ability is never at a premium—are of course the first to be thrown out of work in any period of extensive unemployment. These persons need the help of welfare societies, vocational training and guidance, in many cases health service and financial assistance. The problem confronting the family welfare societies of the entire country at present, however, is not so much that of assisting these 'unemployables' but even more, that of helping families whose difficulty grows out of the inability of able-bodied, willing and perfectly competent persons to secure work."

Plenty of Relief Needs Without Unemployment

Most family welfare societies, the Association reports, have all they can do (and in many cases more than they can do) to assist families whose difficulties arise not only out of the present unemployment situation but from many other factors such as chronic illness, marital maladjustments, physical and mental handicaps and innumerable other human difficulties necessitating social service.

Replying to the question "What are the prospects for the next few months as respects wages and unemployment in your community?" the family welfare societies of 5 cities answered "good," 28 replied "improvement expected," 6 said "slight improvement expected," 3 that prospects were uncertain, and 15 said that prospects were poor for the next few months.

Vision and Courage in Housing Betterment Urged by Governor Roosevelt

AN impelling plea for the application to slum elimination of a degree of vision and courage such as have gone into skyscraper construction was voiced by Governor Franklin D. Roosevelt, speaking at a luncheon meeting of the New York Board of Trade, Inc., held on February 28 at the new Hotel New Yorker.

Expressing his admiration for the imagination and daring by which the business men present had been transforming a dream into "a tangible thing of steel and brick and tile that reaches a thousand feet into the air and burrows down to the bedrock of Manhattan Island," the Governor said:

"As you have envisioned and dared to create what we have not inaptly called the 'skyscraper,' is it too much to ask you to cast your eyes lower and picture to your minds a city of apartment homes where light and air and sunshine are enjoyed by everyone? If you should make this dream come true, you will have achieved that which will bring you far more than satisfied pride, an accomplishment which will bring you the most gratifying of all feelings, the consciousness that you have done much to make life a happier thing, a pleasanter thing for thousands of your fellowmen. Is this not a worth-while thing that I am asking of you? This is an old problem and many worthy souls, touched with compassion for the poor, have tried to solve it, but there lie tremendous difficulities in the path. It is easy to be philanthropic at the expense of others. But even if it were possible, it would not be fair and just to expect a few to bear the heavy financial burden which would fall upon those who convert their present properties to the far more expensive and less remunerative type of modern dwellings.

"There are those who say there is no answer, that this city and all great cities must hide in dark alleyways and dingy streets buildings that disgrace our modern civilization; where disease follows poverty and crime follows both. I confess, I see no clear way, but I vision just outside those walls convincing evidence of what your courage, your vision, your resourcefulness have done, and I believe if you will take this up as a body, in mutual conference, and apply your most practical knowledge to this matter of the housing of our poor, that you will find the way; and I believe that if you find the way, your courage and persistence will see that it is done."

Notable Improvements in Street Repairs in Oil City, Pa.

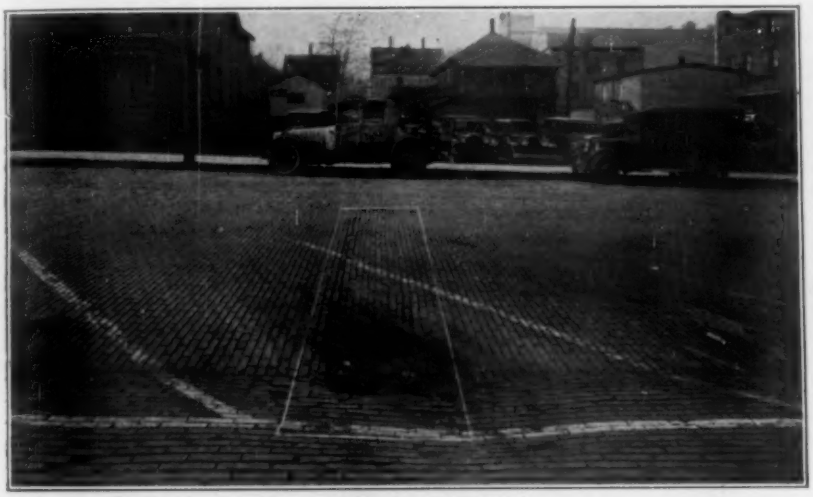
By C. L. SMITH
SUPERINTENDENT OF STREETS AND PUBLIC IMPROVEMENTS

SHOULD public utilities and plumbers be permitted to dig into city streets at will and then make their own repairs with perhaps just a slight fee for the privilege?

This was the condition which existed in Oil City prior to September, 1928, when Ordinance 1192, regulating street openings, was passed. The utility simply posted a bond, and the city measured up the opening and billed the utility for the size of the opening. The collecting of the money was a problem.

Under the new ordinance, anyone desiring to make an excavation must take out a permit and pay in advance the amount provided in the ordinance. In paved streets the fee is $5 per square yard, with a minimum charge of $10. Backfill must be thoroughly tamped and at a point 18 inches from the top of the pavement the fill must be left in an oval or convex shape. At this point the ditch is widened 9 inches on the side without disturbing the surface of the pavement. If not, the charge is that much greater. Into this enlarged section of the trench a 1:2:4 concrete is deposited. This concrete arch must be not less than 6 inches thick at the crown and be reinforced when necessary. The accompanying diagrams show the method of taking care of this for various types of pavement.

The Street Department restores the surface of the pavement with the money paid for the permit, which forms a rotary fund. For openings in sidewalks, grass plots and unpaved streets the fee is 50 cents per square yard, with a minimum of $2.



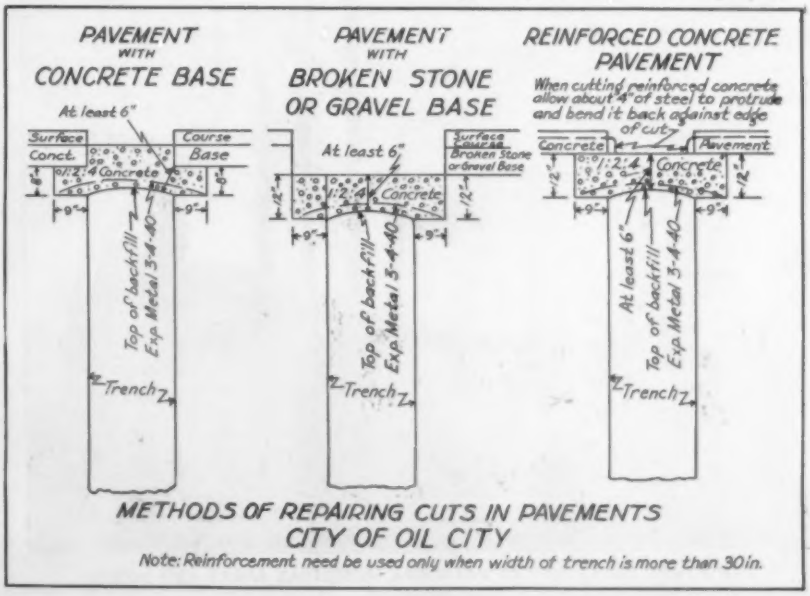
A REPAIRED UTILITY CUT
The cut was made the last week the old ordinance in Oil City was in effect. Note how it has sunk and become a menace to traffic

SAFETY AND PERMANENCE EXEMPLIFIED
A street opening repaired the same week as the one shown in the picture below, but under the new ordinance

The two accompanying illustrations show the last openings made under the old ordinance and the first made the same week under the new ordinance. You will note in the old one how the fill has sunk and become a menace on the street. In the other, it will be noted that the concrete arch not only holds up the pavement but keeps the water out of the newly made trench.

It is sincerely believed that if this ordinance had been in effect 20 years ago, the city would have been saved many thousands of dollars and motorists many broken springs. It is now really difficult to find the spots in the brick pavements where the excavations have been made under the new ordinance.

The balance in the rotary fund has shown that the charge made for openings is ample to take care of the repaving. If the fund grows so that it is larger than is needed for this work, the charges may be modified at any time.



METHODS OF REPAIRING CUTS IN PAVEMENTS CITY OF OIL CITY
Note: Reinforcement need be used only when width of trench is more than 30 in.

Pasadena Gets Low-Cost Power

Doubling of Generating Capacity Is Accompanied by Greatly Increased Efficiency, with Unusually Low Rates to Consumers

By JAMES N. HATCH

OPERATED by a City Manager and a Board of Directors, Pasadena, Calif., is justly proud of the success she is making as a business organization. The confidence that the city feels in its officials was shown by the large majority which the $10,000,000 bond issue to extend its water-supply obtained. Not the least among the municipal enterprises to which she points with pride is the furnishing of electric light and power. From a humble beginning 23 years ago the light and power system has grown until it now covers a territory of over 18 square miles and serves a population of 83,000, with an investment of nearly $5,000,000 and a gross income of $1,500,000. To keep pace with the growth of the city and to meet its increasing demands for service, it has been necessary for the Light and Power Department to keep increasing and improving its power-station facilities, until, with the improvements and additions that have been completed within the past year, it now has a thoroughly modern plant with a capacity of over 30,000 kilowatts and an output of 55,000,000 kilowatt-hours per annum.

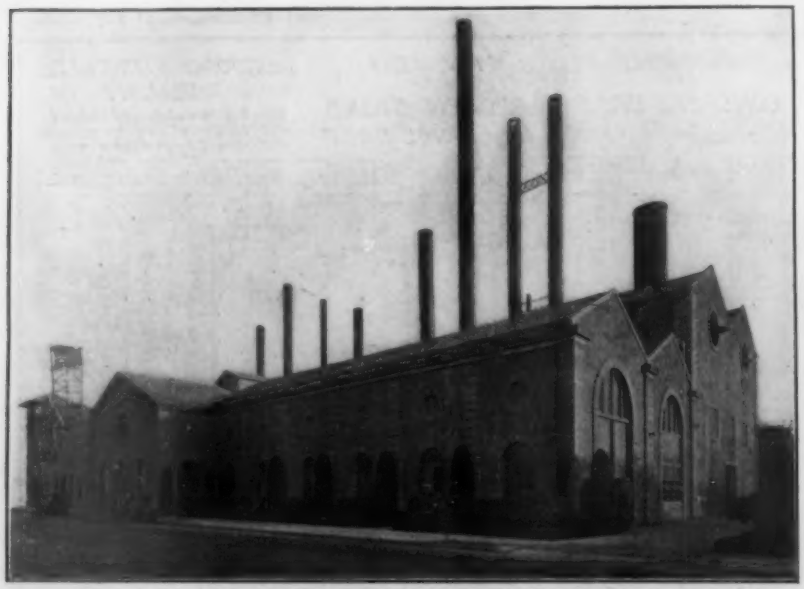
The Power-Plant

The generating station is located on Glenarm Street, between Fair Oaks and Broadway, where the city owns ample property for future extensions. It now supplies the entire city area with electricity both for street lighting and for all commercial uses. The peak load on the station is about 18,200 kw. During the past year there has been put in operation a new 15,000-kw. turbo-generator which is operated all day and carries the total normal load on the station. With this new generator there were also installed two new boilers of 1,523 horsepower each, designed for a pressure of 450-lb. gage, and 725° F. at the throttle. The station is now equipped with the following generating equipment, totaling 30,685 kw.:

Unit Number	Date of Installation	Capacity Kw.	Efficiency: Kwh. per Bbl.	Efficiency: B.T.U. per Kwh.
1	1907	200	125	50,000
2	1908	350	135	46,300
3	1909	885	150	41,700
4	1911	1,250	160	39,100
5	1914	3,000	180	34,700
6	1924	10,000	240	26,000
7	1928	15,000	325	19,200

It is intended that another new unit shall be added within the next five years. The size of this proposed unit is not yet decided upon, but it probably will be 20,000 or 25,000 kw.

The generating equipment is made up of 1,435 kw. in reciprocating engines and 29,250 kw. in turbo-generators. The last three units are of Allis-Chalmers manufacture. The steam pressure has been increased from 200 pounds in the older units to 400 pounds in the new unit, and the generated voltage from 2,400 to 11,000. The average load factor has been for the past eight years about 45 per cent.



THE POWER-PLANT OF THE PASADENA MUNICIPAL LIGHT AND POWER DEPARTMENT

There are 13 boilers with pressures of 200, 250 and 450 pounds. The two new boilers were manufactured by the Combustion Engineering Co. and are of the Walsh and Weidner horizontal cross drum type, generating steam at 450 pounds gage pressure. The sides of the furnaces are cooled by means of bare-tube water screens, partly imbedded in the refractory. Forced- and induced-draft fans are used and air supplied to the furnaces is preheated by Green Fuel Economizer Co.'s air heaters, raising the temperature of the air to 350 degrees. No economizers are used, as the feedwater is amply heated by the extraction of steam, and the stack gases are cooled to about 300 degrees by the air preheaters.

When the plant was first built, water for the boilers and for the condensers was obtained from wells on the property, but at the present time all water is purchased from the municipality. About 700,000 cubic feet of water per month is being used, with a peak demand of about 100 gallons per minute. This is all cooled by being run over a cascade type cooling tower and used over and over again. All water is treated to obviate the formation of scale in the condenser tubes. Distilled water is used for boiler make-up. There is now being seriously considered the plan of piping the effluent from the Pasadena sewage-treatment plant in Alhambra, to the power-plant, to be used for condensing purposes. Condensing equipment for the new unit is of the Ingersoll-Rand make with 16,250 square feet of surface.

Rate Schedules

The rates for electrical energy have recently been reduced to the low levels shown by the following schedules, based on monthly consumption:

LIGHTING

First 200 kwh.	4.5 cents per kwh.
Next 300 kwh.	4.0 cents per kwh.
Next 500 kwh.	3.5 cents per kwh.
Next 1,000 kwh.	3.0 cents per kwh.
Next 1,000 kwh.	2.5 cents per kwh.
Next 10,000 kwh.	2.0 cents per kwh.
All over 13,000 kwh.	1.5 cents per kwh.

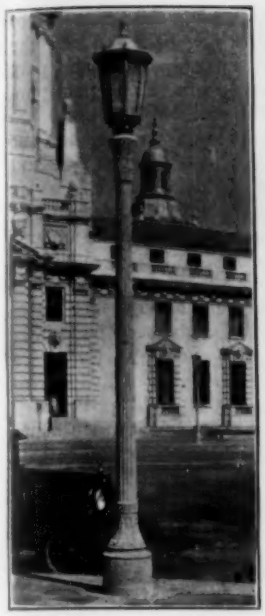
Minimum monthly charge is 50c per meter of 3-kw. capacity or less, plus 75c for each additional kilowatt of meter capacity required.

Incandescent lamps are sold at cost to patrons.

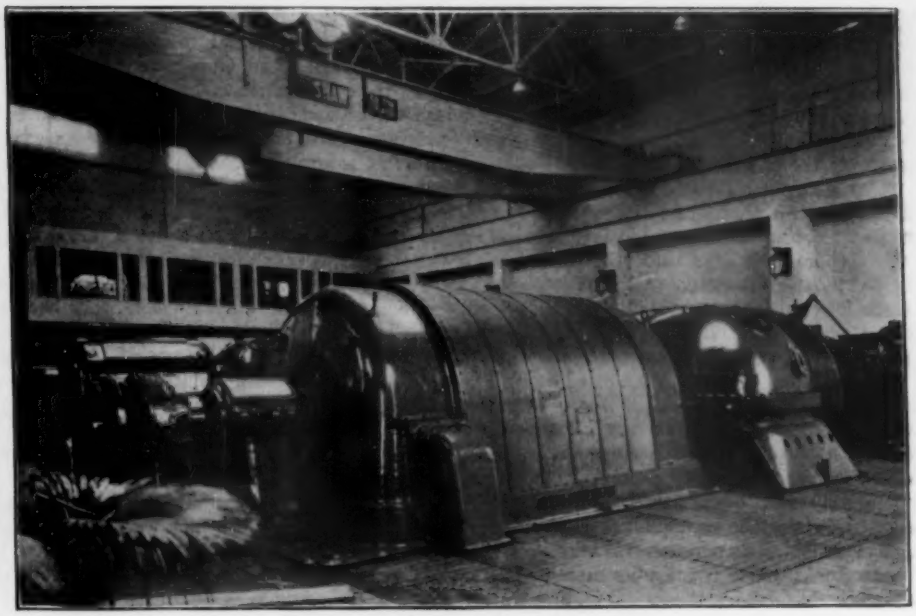
COMBINATION DOMESTIC LIGHTING, COOKING AND HEATING

Lighting block (minimum 30 kwh.)	4.5 cents per kwh.
Next 50 kwh. or less	3.0 cents per kwh.
Next 500 kwh. or less	2.0 cents per kwh.
All excess	1.5 cents per kwh.

The lighting block consists of 10 kwh. per lighting circuit for 10 circuits or less, and 6 kwh. for each circuit over 10.



ORNAMENTAL STREET LIGHT AT CIVIC CENTER



THE NEW 15,000-KW. STEAM TURBINE
This unit nearly doubled the power-plant capacity, at greatly increased efficiency

The minimum monthly charge is $3 for 7 kwh. or less, and 25c for each additional, except during the months of June, July, August and September, when the minimum is 50c per meter.

COOKING AND HEATING

First 100 kwh.	3.0 cents per kwh.
Next 500 kwh.	2.0 cents per kwh.
Next 5,000 kwh.	1.5 cents per kwh.
Next 10,000 kwh.	1.25 cents per kwh.
All over 15,600 kwh.	1.0 cents per kwh.

Same minimum as for combination rate above.

COMMERCIAL POWER

First 100 kwh. ..... 4.0 cents per kwh.

Scaling down to 1c per kwh. after 150,000 kwh.

Minimum monthly charge is $1.50 for 3-phase installation of 2 hp. or less, and $1 for single-phase installation of 2 hp. or less, plus 55 cents for each additional horsepower installed.

Distribution System

The old units generate at 2,400 volts. About one-half of the output from the station is distributed at 2,400 volts; the other half is carried across the street to an outdoor transformer station, where it is stepped up to 15,000 volts, and carried to two substations, where it is stepped down to 2,400 volts for local distribution.

The output from the new unit is carried over to the outdoor transformer station, where one-half is stepped up to 15,000 volts and sent to the substations, and the other half is stepped down to 2,400 volts and brought back to the station switchboard.

It has been found necessary during the past year to install throughout various sections of the city new and heavier feeders to supply the increasing demand for energy. This increase has been specially notable in ornamental street lighting, and has caused the purchase of a site for another substation, which will be erected in the near future.

It has always been the policy of the Light and Power Department to encourage underground conduit districts where the poles may be done away with and all wires placed underground. If this policy is carried out, it is hoped that in a few years Pasadena may enjoy freedom from the unsightly overhead distribution system.

Capital Account

The total amount invested in power-plant equipment, distribution lines, buildings, land, etc., as of June 30, 1929, is $4,923,237.33, on which there are bonds outstanding to the amount of $596,333.25. The difference represents what has been put into the property from earnings, or $4,326,904.08, of which the sum of $895,666.75 represents bond redemption from earnings. A depreciation reserve of $1,828,985.34 has been established.

Development History

Prior to 1906 the city of Pasadena, then with a population of 30,000, purchased all its light and power from a private corporation. It had been felt for some time that the rate being paid for electric energy was higher than the then current rate in other similar municipalities, and that the service was not altogether satisfactory. A proposition was therefore made to build a municipal power-plant and a distribution system to care for the street lighting. As a result of this agitation, a bond issue of $125,000 was carried in May, 1906, and a street-lighting system consisting of 298 arc lamps and 66 32-candlepower incandescent lamps, with steam-engine, generator, etc., was installed.

In February, 1908, a second bond issue of $50,000 was voted. This was used for the purchase of a 240-kw. unit and additional boilers and auxiliaries, required to meet the increased load and to place the plant in a position where it was not depending on a single unit. With the success that two years' operation for street lighting had shown, a proposition was then put forth to enter the field of commercial lighting and power. As a result of the favorable reception of this proposition, a third bond issue, of $150,000, was voted, on February 11, 1909, and carried by a large majority.

Before the city had entered the public utility field, the base rate that had been charged for electrical energy was 15 cents per kwh. A cut was made from this rate to 12½ cents, less 10 per cent, after the first city unit was put in operation. This was the rate charged when the city entered the commercial field. The city established a rate of 8 cents for domestic service and a rate for power of 4 cents for the first 100 kwh., scaling down to 1.2 cents for large monthly bills.

In 1909 the power-plant facilities were further increased by the addition of another reciprocating engine, of 707 kw., with boilers and auxiliaries, bringing the total generating capacity to 1,147 kw.

When the third bond issue carried by a vote of 7 to 1, the city made a proposition to the private corporation to purchase its distribution system throughout the city, and also all the electrical energy required, instead of operating the municipal plant, provided a rate could be decided upon that was no more than it was then costing the city to furnish energy from its own plant. The cor-

poration did not accept the offer, and the two producers became competitors throughout the city. This resulted in having duplicate lines along the city streets and caused much shifting of patronage back and forth from one producer to the other.

The municipal system, owing to the loyalty of the people of Pasadena, continued to grow in spite of the fact that the corporation made rates that were below those of the city, and were said to be lower than the prevailing rates in other nearby cities to which the corporation was furnishing similar service. This condition was finally adjusted by the Legislature's passing a bill that provided for the correction of unfair rates on the part of a private corporation which furnished electrical energy in one community at a discriminatory rate as compared to other communities. This act caused the corporation to ask, in September, 1913, to equalize its rates to those established by the city of Pasadena. After this adjustment of rates the city's business grew rapidly, until in 1920 the city had 12,000 customers as against its competitor's 4,000.

Cooperation with Los Angeles

When Los Angeles completed its aqueduct system from Owen Valley, there was enough fall along the line to enable the city to install several hydro-electric power stations and transmit electricity into Los Angeles. It had been the understanding between Los Angeles and Pasadena as far back as 1909 that as soon as Los Angeles could furnish hydro-electric power to Pasadena at a cost less than it could be produced in the latter's municipal plant, Pasadena would purchase its energy from Los Angeles in preference to operating its own plant.

In April, 1917, Los Angeles had its hydro-electric plant No. 1 in operation, with a generating capacity of about 12,000 kw. but with only a very small distributing system, as practically all the city was being supplied with electricity from three private companies. It was therefore glad to sell Pasadena energy at a low rate. Pasadena built a power line to the Los Angeles city limits and began purchasing hydro-electric power at a rate of 0.65c per kwh. at Pasadena's switchboard, measured on the low side of the transformer at 2,300 volts. At that rate Pasadena could purchase power cheaper than it could generate it. When Los Angeles leased the Los Angeles distributing system of the Southern California Edison Co. for two years, with an agreement to purchase it at the end of that time, subject to referendum vote of the people, that company also was given the first rights to all surplus power generated by the Los Angeles municipal plants. It seemed, therefore, that Pasadena could not depend on receiving any power from that source. This was a disappointment to the latter city, as the World War was on and fuel oil was costing $1.55 per barrel, the Government was urging the conservation of fuel, and Pasadena was anxious to do its bit.

Negotiations were then started with the Southern California Edison Co. with the view of purchasing its distributing system in Pasadena and of purchasing hydro-electric power from it at a price of 0.85c per kwh., scaling down to what would have been approximately 0.8c per kwh., depending on the quantity consumed. Before any contract was closed with the Edison company, new negotiations between the two cities resulted in a contract being entered into by which Los Angeles offered to supply Pasadena with electric energy at 0.65c per kwh. This contract for energy was closed on November 25, 1917, and continued for over a year, when a new contract was entered into, on February 6, 1919, for a period of fifteen years for surplus energy at a rate not to exceed 0.7c per kwh. This contract provided for the maintenance of the Pasadena steam plant, not only for its own use when needed, but for supplying electric energy to the extent of its peak-load demand for Los Angeles at such times as it might be required, on account of emergency.

Pasadena purchased practically all its energy from Los Angeles during 1918 and 1919, throughout which time the price of oil was high. After 1919 Los Angeles was no longer able to supply enough energy to carry the entire load of Pasadena, and during 1920 and 1921 the municipal plant was operated and part of the load was generated and part purchased. By the end of that time, Los Angeles could spare only a small amount of energy, and Pasadena during 1922 and 1923 purchased a little over half of its energy requirements from the Southern California Edison Co., a small amount from Los Angeles, and generated the rest. Since 1923 practically all the load has been carried on the Glenarm plant, except occasionally during the spring months, when the Southern California Edison Co. has a surplus of hydro-electric energy, and sells "spill" power at a low rate. With the present price of oil at 50c per barrel, energy at the switchboard costs only about 0.3c per kwh., and the city's plant carries the entire load.

During the summer of 1924 there was a serious shortage of water in Southern California; the hydro-electric plants were not able to furnish more than 75 per cent of the normal demand for energy and the Edison steam plants were not able to supply the deficiency. At that time Pasadena had just completed the installation of its No. 6 unit, of 10,000-kw. capacity, and was able to supply the Southern California Edison Co. the full output from this machine from May 1 to November 1 of that year without feeling any inconvenience from shortage of power.

A Postscript to the List of City Planning Commissions

THE tabulation of the country's City Planning Commissions, as compiled by the Division of Building and Housing, United States Department of Commerce, and published in THE AMERICAN CITY, March, 1930, pages 99-100, was headlined with a question: "Is Your City in This List of Forward-Looking Municipalities Having Planning Commissions?"

The magazine has received several answers to the question giving information about cities (1) that should have been included but were not; (2) cities that should not be there, but are; and (3) cities for which details are not correct, or in which recent changes have been made.

Edward T. Hartman, Consultant to Planning Boards, Commonwealth of Massachusetts, reports the existence of planning boards (as they are called in that state) in Canton, Orange, Scituate, Sudbury, and Westboro, Mass.; that the boards in Great Barrington and Nantucket are now dead, no elections having taken place; and that there is no such municipality at East Weymouth, that being merely the name of a postal district within the town of Weymouth.

E. A. Wood, City Planning Engineer, Dallas, Texas, reports that Corpus Christi, Texas, has a plan commission without zoning ordinance; and that Dallas and El Paso should be shown to have zoning ordinances, these having been adopted in September and December, respectively.

Santa Rosa, Calif., has had a planning and zoning commission in active operation for the past three years, according to G. Lansing Hurd, of the Santa Rosa Chamber of Commerce.

K. S. Foster, Secretary, New Orleans Association of Commerce, writes that New Orleans adopted a comprehensive zoning ordinance last June "as the result of over two years' work by Bartholomew and Associates and at an expense of several thousand dollars." The Zoning and Planning Notes department of this magazine for last July carried a notice of this adoption, inadvertently omitted by the Department of Commerce from its report, and has mentioned practically all the other adoptions.

International Housing and Town Planning Conference Postponed

The International Federation for Housing and Town Planning has announced that there will be no International Housing and Town Planning Congress during 1930. It has accepted the invitation of the Magistrat of Berlin to convene there in June, 1931.

Washboards

Results of a Practical Study of the Formation and Cure of Washboards in Gravel Highways

By HOMER J. DANA
ASSISTANT DIRECTOR, ENGINEERING EXPERIMENT STATION, STATE COLLEGE OF WASHINGTON, PULLMAN, WASH.

HIGHWAY transportation in the United States is becoming more important and more popular each year. In many places where the traffic will warrant the expenditure, hard-surface roads have been built. Whether or not a concrete or bituminous road is built in a given locality is determined partly by the traffic need for such a road and partly by the financial conditions and the political situation of that region as well. In places where hard-surface roads for one reason or another cannot be built and traffic warrants an improved road, it has been customary to surface the road with gravel or crushed rock with which a small amount of clay is mixed for binder. This is a type of macadam surface commonly found in the Pacific Northwest and there are thousands of miles of such highways in use throughout the United States, with many miles being added each year.

A crushed-rock or gravel-type surface when in good condition gives excellent service for both passenger and truck traffic. As the volume of traffic reaches 1,000 or more cars per day, however, such a surface quickly develops into what is commonly called washboards, rhythmic corrugations, ripples, chatter-bumps, etc.

Washboards Are Hazardous

The presence of washboards in gravel or crushed-rock highways is a serious problem. For one thing, it increases the hazard of driving in that cars cannot be as well controlled over such highways at high speeds. The severe treatment endured by the tires and running gear of the car tend to shorten the life of those parts materially. In the case of trucks a badly washboarded highway tends to limit the maximum possible load which truck springs can carry.

Engineers have continuously sought means to either eliminate or materially diminish the formation of washboards in gravel highways. Their efforts have been directed primarily toward the treatment of the road surface, and this has been only partly successful. By the use of intensive maintenance, such as frequent planing and blading of the gravel surface, they have been able to limit the depth to which washboards will form. The fact that the road surface is being continuously stirred and pulverized by the maintenance equipment, however, has augmented what has popularly been called the dust menace of driving. For these reasons and in the interest of economy, the Engineering Experiment Station of the State College of Washington has undertaken a very valuable study of the cause and prevention of washboards in gravel highways.

Tests Begun in 1926

In 1926 a car was equipped with a mechanism which recorded on paper the relative motion of a car axle with respect to the body of the car when traveling over washboard roads. Extensive tests were made at different speeds over several different washboard highways. Tests were also conducted on perfectly smooth roads on which had been placed a bump or a single depression. This made it possible to analyze the entire history of a single road shock. It was soon apparent that in the making of these tests there were other factors beside the bumps in the road surface which were entering into the test records. One of these especially was the lurch of the car body from side to side. In 1927 a small laboratory apparatus was developed which embodied the characteristics of a car and on which tests could be made without the introduction of disturbing influences. All cars possess the characteristics of sprung and unsprung weight. The car body which is carried on the springs is the sprung weight. The car axle, together with the hubs, brakes and wheels constitute the unsprung weight. This unsprung weight, however, is somewhat cushioned by the air in the tires. The results of the experiments with this laboratory apparatus were published in Engineering Bulletin No. 19 of the Engineering Experiment Station.

A WASHBOARD SECTION OF A GRAVEL HIGHWAY WHICH HAD BEEN TREATED WITH LIGHT OIL TO LAY THE DUST

Test Track Built

In order to verify the conclusions of the early reports, a test track was built in 1928 on the State College campus. The track was 175 feet in diameter and banked for a normal speed of 20 miles per hour. The surface of the track was given a gravel topping according to standard state highway specifications, except that it was only about 5 inches thick. A Model-T Ford touring car used for the tests was equipped with high-pressure tires, 3½-inch tires at 55 pounds air pressure, and driven at 20 miles per hour. Washboards could be formed on the gravel surface of the test track in 100 trips. Equipped with Houdaille hydraulic shock absorbers, the formation of washboards was found to be much slower. In fact it was not possible to make satisfactory washboards on the test track with this combination. When balloon tires were substituted without shock absorbers, it was found impossible to make washboards on the test track, even though the test was continued until the road was virtually worn out. While the above tests all contributed to the fund of information on the subject of washboards, it was felt that further tests should be conducted on a straight highway. This would more nearly duplicate the conditions that exist on a public highway and results

THESE ARE CONDITIONS ALL TOO WELL KNOWN TO HIGHWAY ENGINEERS

1. Washboards formed in dry, loose gravel. The base was hard and nearly smooth, with humps formed of fine and coarse material more or less compacted into shape but still loose and easily moved. 2. Washboards on an oiled gravel highway. The humps are hard and about 1 inch deep. These washboards were formed by traffic digging pits in the hard surface of the road. Not much loose gravel was present

from such tests would be more readily accepted by engineers and others interested in highway maintenance.

The Straight-away Test Road

During the summer of 1929 a practically ideal straight-away test road was built. This road was a part of the original highway between Spokane and Cheney before the new concrete road was built. It runs east and west on the east side of the concrete highway and ¼-mile north of Four Lakes, Wash. The road is level throughout its length, except for a short section which has a grade of from 3 to 5 per cent. There are two long, easy curves. The surface appears to be of screened material from a glacial gravel deposit and it is estimated that 85 per cent of this loose material in the road would pass a ⅜-inch screen. The sand is quartz with practically no basalt present. During the season of the spring rains the State Highway Department went over this road with a grader and left it perfectly smooth. Under the normal light traffic of 10 to 15 cars per day, the surface became hard and smooth. During the following dry weather a grader was again used to plane the surface, leaving about 2 inches of loose material on a perfectly smooth, hard base.

The Tests

Preliminary to each test, the loose material on the surface was brought to the center of the road and spread evenly a little wider than the width of a car. The drag used consisted of four angle-irons rigidly welded to crossbars as illustrated and dragged behind the car at about a 60-degree angle to the line of travel. After going over the road with the drag in one direction, the angle of the drag was reversed on the return trip. This tended to eliminate "drag ripples" and left the road surface practically smooth and free of any bumps or depressions.

After the tests had been completed, washboards would be present in varying places on the road. Owing to the light traffic, the test car was driven back and forth in the same track, thus concentrating all the travel on the center of the road. In order to thoroughly erase the influences of any previous tests, the road was scarified before it was dragged. The scarifier consisted of a steel frame about 18 inches wide and 4 feet long. Four rows of teeth were arranged equidistant along the length of this frame. Successive rows of teeth were staggered with the preceding rows. While this scarifier was not heavy enough to actually tear up the hard surface of the road, it thoroughly loosened the gravel which the car had packed into washboard shape during the previous tests. Thus, after scarifying and dragging the surface for this test, it was reasonably certain that the results would not be influenced by what had taken place previously.

The Test Car

The car chosen for the test was a 1927 Chevrolet coach of 103-inch wheelbase and weighing 2,620 pounds with the driver. Two sets of wheels were provided. On one set were mounted balloon tires 29 x 4.40 with 34 pounds air pressure. On the other set of wheels were mounted high-pressure tires 30 x 3.50 at 55 pounds air pressure. The car was equipped with a new set of Two-Way hydraulic shock absorbers.

Running the Tests

The test road, which was 1.40 miles long, was divided into five sections. On the section at one end of the road a speed of 25 miles per hour was maintained, in either direction. On the adjacent section the speed was raised to and maintained at 35 miles an hour, on the next section at 40 miles per hour, on the next section 30 miles per hour, and on the other section at 25 miles per hour. At each end of the track a short section was reserved for decelerating prior to turning around and for accelerating again to 25 miles per hour. Also, between adjacent sections, it was necessary to reserve a short distance for accelerating or decelerating for the speed in the next section. Thus when the test was completed, comparative results were shown at four different speeds.

At the beginning of the tests several days were spent in learning how to develop and control the desired conditions. For instance, it was found that dragging had to be done at a speed not exceeding 3 to 4 miles per hour. Otherwise the drag would jump and chatter, leaving a rough surface. It was also found that unless the angle of the drag to the line of travel was reversed each time over the road, a series of drag ripples would result which would seriously influence the results of the tests.

Repeated tests were made during these first days, until it was felt that the conditions were understood and could be controlled and duplicated at will. This made it possible to put the track in the same shape for each successive test. Furthermore, it was discovered that the formation of washboards as far as comparative tests were concerned need not progress to the extreme conditions found

on average gravel highways. In other words, a stopping point for the tests was determined upon at which the washboards were perhaps not more than ⅛-inch deep and had not dug into the hard road surface. They consisted entirely of the loose gravel placed and packed in more or less uniformly spaced shallow ridges and hollows. At this stage of their formation, the washboards were plainly visible to a driver in a car and the distance between successive ridges could readily be marked and measured.

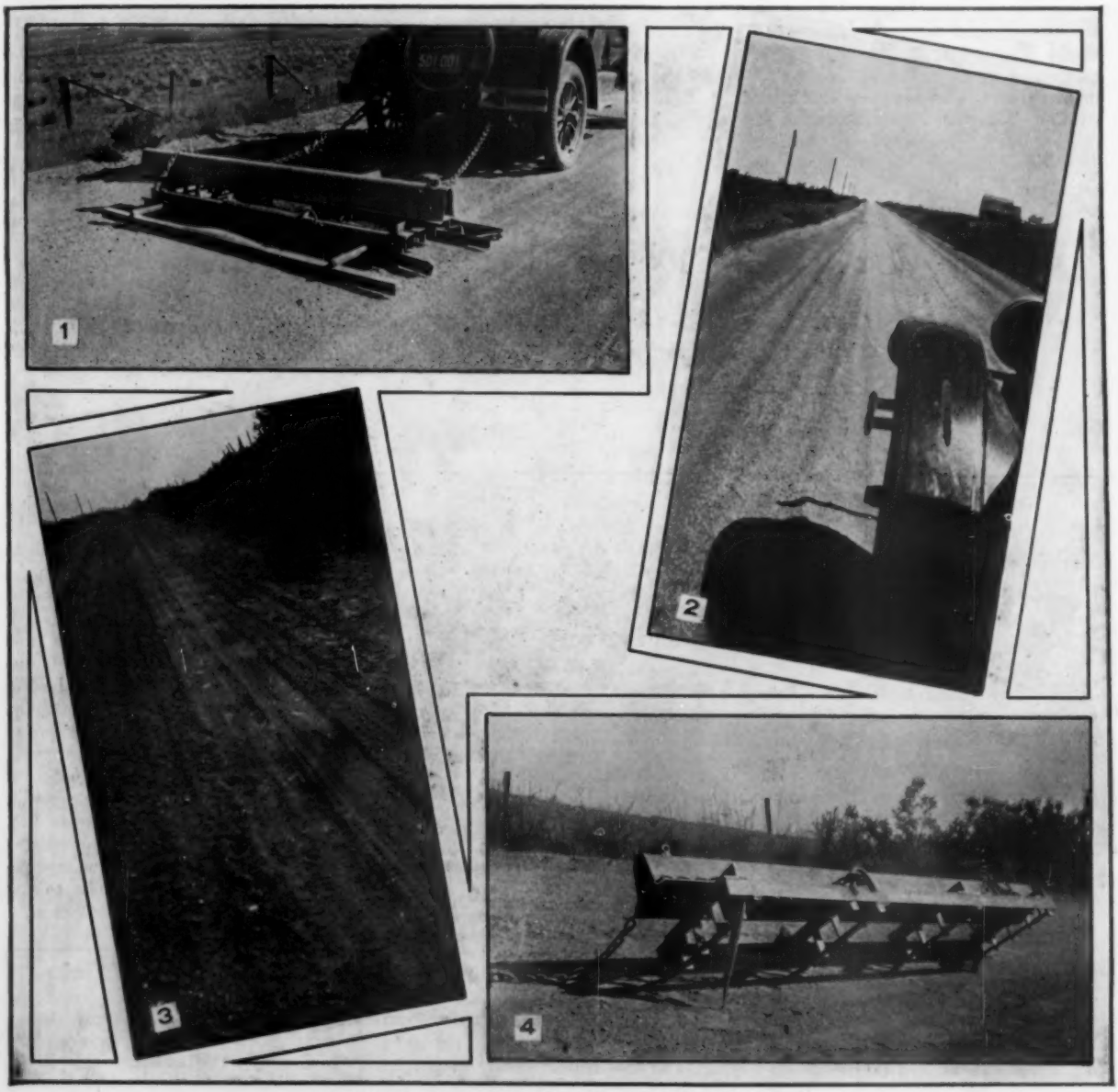
The driver of the test car was constantly on the alert during the progress of the tests to observe the first appearance of washboards. Note was made of the time of occurrence and the section of the road on which washboards first appeared. As might be predicted, washboards first appeared in the highest-speed sections and were last to appear on the lowest-speed sections. Furthermore, it was observed that the average length of washboard varied according to the speed of travel on that section.

FORMATION OF WASHBOARDS AS RELATED TO SPEED OF TRAVEL ON TEST TRACK, 1929

Test No.	Type Tire	Shock Absorbers	Trips to Make Washboards: 25 m.p.h.	30 m.p.h.	35 m.p.h	40 m.p.h.
1	H.P.	No	100	91	36	36
3	H.P.	No	137	79	71	65
6	H.P.	No	146	76	60	50
5	H.P.	Yes	No Wb. at 290	230	153	230
7	H.P.	Yes	188	188	105	92
9	H.P.	Yes	No Wb. at 350	220	126	110
4	L.P.	No	No Wb. up to 360 trips			
8	L.P.	Yes	No Wb. up to 570 trips			

Effect of Shock Absorbers

It will be noted that Two-Way hydraulic shock absorbers were used in the 1929 tests. These were installed and used with the original factory adjustment which gives slight resistance to compression and considerable resistance



EQUIPMENT AND ROAD USED FOR WASHBOARD TESTS

1. The road-drag fully weighted and attached behind the test car. The blades of the drag make an angle of from 50 to 60 degrees with the line of travel. 2. Note the smooth surface of gravel packed by the balloon tires. No evidence of washboards here. 3. Washboards as developed on the 35-miles-per-hour section, using high-pressure tires. 4. The scarifier raised from the road surface to show the four rows of teeth. Each row is staggered with the preceding row

to recoil. While tests could have been made with other adjustments of the shock absorbers, it was felt that other means could be devised for determining the optimum adjustment without spending the days and weeks necessary to conduct the road tests.

Conclusions

From the table it will be seen that speed of travel bears a definite relation to the rapidity with which washboards are formed by high-pressure tires. Furthermore, the addition of one type of shock absorber at least has a retarding effect on the formation of washboards and would seem to prevent their formation at low speeds.

It will be noted that in these tests balloon tires did not make washboards, even after prolonged operation on the test track. Whether or not balloon tires would promote or retard their formation on an already deeply washboarded highway is a question yet to be answered. Likewise, the comparative effectiveness of different types of snubbers and shock absorbers is still to be determined.

CHARACTERISTICS OF WASHBOARDS MADE ON TEST TRACK, 1929

Speed m.p.h.	Average Length of Washboard in Inches	Number of Washboards Passed per Second
25	21.14	20.8
30	23.83	22.1
35	26.47	23.3
40	28.32	21.0

Effect of Speed on Washboard Length

From the second table it will be noted that the average length of washboards in the different speed sections varies somewhat according to the speed of travel of the car used in the tests. If the movement of the wheels and axles had corresponded with the free movement of a weighted spring, then the third column would have shown one constant value as the rate of vibration, regardless of the speed of travel of the car. The actual vibration as computed from the average length of the washboards and the speed at which they were formed gives values ranging from 20.8 to 24.0 vibrations per second. This indicates that the speed of travel of the car introduces certain factors which cause the wheels and axles to vibrate at a rate other than their natural period.

Savings Possible Through Use of Balloon Tires

While the percentage of high-pressure tires on passenger cars has greatly diminished and is at present very small, the percentage of trucks on the highways is constantly increasing. Truck tires are at present essentially of the high-pressure types, although a very few trucks are using what is known as the truck-type balloons. It is hoped that subsequent tests in the laboratory and on the highway will yield definite information as to how much the behavior of the car or truck wheel can be controlled with reference to its propensity for making washboards. It is believed that some type of snubber or shock absorber applied to the high-pressure type of tires will not only contribute to the easier riding quality of the vehicle thus equipped, but will serve to greatly diminish the expense of surface maintenance. Such an accomplishment would point the way to a possible saving in maintenance money alone of hundreds of thousands of dollars per year in the states having large mileages of gravel roads.

Stop Every Water-Tank Leak

Overload of Ice from Small Leak in Tank Caused Collapse of Tank, but Prompt Work by Water Department Prevented Water Shortage

By A. H. FRETTER
SUPERINTENDENT, WATER-WORKS DEPARTMENT, MEDINA, OHIO

THE WEST SALEM TANK AFTER ITS FAILURE, SHOWING THE DISTANCE TO WHICH THE COVER WAS THROWN

Note the very large accumulation of ice, which was the cause of the failure. Special attention should be paid even to minor leaks in any type of tank in the winter time, to prevent the accumulation of ice, which may form a heavy eccentric load

THE village of West Salem, Ohio, suffered an unusual loss last winter through the collapse of its 40,000-gallon steel water-tank, built in 1914, which was the only protection provided by the town against fire. Water was pumped from wells to the tank and then flowed by gravity into the mains.

A small leak developed during the cold weather, and ice gradually accumulated on one side of the tank until the weight put an unusual eccentric strain on the supporting tower, causing it to fail. The leak had evidently been running for some time, as is shown by the large deposit of ice on the ground.

The cover, which is just visible in the photograph, was thrown about 200 feet from the tank and in some manner sheared off a cherry tree about 12 inches in diameter, carrying the bottom of the tree away from the stump far enough so that the top of the tree was lying on the stump. The cover went about 80 feet beyond the tree, while the spider out of the top was left between tree and tank.

Immediately after the accident, the Village Council voted to borrow the 18,000-gallon tank of the Standard Oil Co. nearby, rolled it into position, and soon had it in service as a storage reservoir. Arrangements were also made with the village of Spencer to send a pumper to West Salem immediately in case of fire. Thus, for only a very short period was the village without its usual water-supply and fire protection, thanks to the prompt action of the Village Council.

Pointers for Water-Works Officials

The short items on page 7 of this issue of THE AMERICAN CITY contain many valuable suggestions for water-works officials in all parts of the country on various problems connected with the operation and maintenance of water supplies.

Long-Term Capital Budget Helps Carrying-Out of City Plan

And Gets More Value for the Tax Dollar

By

GEORGE B. FORD

DIRECTOR, REGIONAL PLAN ASSOCIATION, NEW YORK

NO city plan is worth the paper it is printed on if it is impossible to carry out. The test of any plan is the practicableness of its execution. It is impossible to know whether a plan can be carried out without marked increase in taxes, unless some study is made of the cost of carrying out the plan.

Obviously, it is impossible for a planning board to calculate the cost of executing its plans during the next ten, fifteen or twenty-five years with any great accuracy; the tentative budget will be roughly approximate at best. However, it is possible for the planning board to get some idea of how much the earlier parts, at least, of its program should cost and then, by comparison with the estimated city revenue and borrowing capacity, determine how much and what items can be carried out each year without materially increasing taxes. This having been done, it remains for an official capital budget commission to prepare a detailed and reasonably accurate joint capital budget for public improvements for a period of from five to ten years ahead.

In New York and New Jersey, tentative budgeted programs have been prepared by the planning boards of Rye, Mamaroneck, Irvington, Bronxville, Ossining, Newark, Bedford, Briarcliff Manor, Mount Kisco and Trenton. New Rochelle has made a similar budget for the next seven years. Official budgets have been prepared by joint capital budget commissions in Cincinnati, Dayton, St. Louis, Dallas, Detroit, White Plains, Roanoke and Schenectady.

The financial studies in the two cases are identical. The only difference is one of detail, accuracy and official standing. The tentative budget prepares the way for the joint commission's official budget. The tentative budget assures the practicableness of the comprehensive city plan. The official budget provides a specific program for its execution.

Briefly, the procedure in either case is as follows:

Fifteen Steps in Preparing the Long-Term Budget

1. All outstanding bond issues of the municipality, whether they be for public improvements, sewers, water, schools or short-time special revenue bonds, are analyzed and the amount of disbursements on each category for each year, both principal and interest, are calculated for a period of ten to twenty-five years ahead. This gives the total carrying charges that the city must allow for in its current budget for each year throughout the period.

2. The total population of the city is then estimated as it would probably be during each year for the period envisaged by the long-term capital budget. This is checked with estimates available from all possible sources.

3. The probable city expenses, exclusive of debt service, are calculated for each year during the long-term budget period. Statistics throughout the country show that, other things being equal, city expenses, exclusive of debt service, tend to increase in direct ratio to the increase of population.

4. The total city expenditure, including the debt service for each year throughout the budget period, is then calculated.

5. Total assessed valuations of the community, according to statistics, tend to increase up to 10 or 15 per cent faster than the increase in population, but in order to be on the safe side, it is customary to assume in working out a long-term budget program that assessed valuations will increase only in direct ratio to the population increase.

6. Assuming that the tax rate remains constant, the city income each year during the budget period can be calculated by multiplying the tax rate by the calculated assessed valuations for each year.

7. City income from sources other than taxes, according to experience, also tends to increase directly with the increase in population. It is thus possible to calculate this other income for each year throughout the budget period.

8. The total city income of each year during the budget period will be the same as the net income from taxes plus the income from other sources.

9. Knowing now for each year during the budget period the total city income and the total city expenditure, including debt service, the difference for each year will be the balance available for the financing of new public improvements either on the pay-as-you-go principle or through new serial bond issues.

10. The legal debt limit of the city is then calculated by multiplying the maximium legal borrowing percentage of total assessed valuations by the calculated total assessed valuations for each year throughout the budget period. Self-supporting bond issues and sinking-fund accumulations are not counted, but city notes issued against local benefit assessments often do have to be considered.

11. The practicable debt limit of the city, as determined by its ability to float bonds on the New York market at a reasonable interest rate, is also calculated for each year during the budget period.

12. The total outstanding net bonded indebtedness of the city is calculated for each year during the budget period.

13. The legal borrowing margin of the city for each year is determined by subtracting the outstanding net indebtedness for that year from the debt limit for that year.

14. The practicable borrowing margin is similarly calculated for each year.

15. The funds available for new public improvements during any year throughout the budget period are calculated by adding the balance from current revenue for that year to the legal borrowing margin or the practicable margin, as the case may be.

Other Essential Steps

The next step is to calculate how much each proposed public improvement will probably cost. The cost should be divided into the following categories:

1. Cost of property and damages
2. Cost of roadways, curbs and drainage
3. Cost of fill, grading and landscaping
4. Cost of buildings and structures, including bridges

Added together, these items will give the total cost of the improvement. In arriving at these costs, it is customary to use current unit costs for each of the current types of street pavement, sidewalk pavement, curbing, guttering, fill, etc. (Incidentally, it is astonishing how greatly these unit costs vary from one city to another.)

The next problem is to determine what proportion of the total cost should be borne:

1. By abutting or nearby property owners in the form of local benefit assessments
2. By the state or county especially in road work
3. By railroads or other public utilities, especially with regard to grade-crossing elimination

The net cost to the municipality is obviously the difference between the total cost and such parts of it as can be allocated to others.

It is next desirable to take various recommended projects of the planning board and divide them up into groups, such and such items to be undertaken during the next one- or two-year period; such and such to be undertaken during the next five-year period, etc.

It is now possible, knowing the net cost to the municipality of each proposed improvement, to determine how much the recommended program for the immediate period and for each succeeding five-year period would cost. Due allowance must always be made for all projects and improvements to which the city council, school board or other authority is already committed. It is most important that there should be no surprises on this score.

Pay-As-You-Go, or Bond Issues?

It is not possible to decide for each period whether the financing of all of the proposed public improvements for that period can be taken care of out of the balance from current revenue on a pay-as-you-go basis, or whether it will have to be financed in whole or in part by bond issues.

In most cases it is found possible to pay for part of the improvement program out of the balance from current revenue on a pay-as-you-go basis, and the balance during the first period or two out of bond issues, always remaining within the practicable debt limit. While this means that the debt service charges throughout each succeeding year have to be taken care of out of the current revenue balance, nevertheless it is usually found possible, after the first period or two, to take care of all of the rest of the public improvement program out of the current revenue balance on a pay-as-you-go basis. This is the outstanding advantage and economy of the city plan and tentative budget, for experience shows that a carefully prepared plan and tentative budget avoids waste and takes full care of the development of the community in an orderly and thoroughly businesslike manner; in other words, it insures to the municipality more value for the tax dollar.

What Kind of Public-Utility Ownership?

IN this day of renewed and revitalized examination of the problems of public utility regulation and ownership, with much of the discussion influenced by concentrated economic interest on one hand and by none too analytical zeal on the other, together with a scarcity of fair-minded and thorough students of the situation who are in close touch with its actualities and at the same time preserve a broad viewpoint, an address by Dr. John Bauer, of the American Public Utilities Bureau, New York, on the question of municipally operating public utilities, at the convention of the International City Managers' Association, merits careful attention.

Dr. Bauer is particularly an authority on the subject of state regulation of utilities, and has exerted constructive efforts for many years to bring about an improvement in that field. His views are correspondingly significant. He has abstracted his address as follows:

What form of ownership of public utilities is desirable depends upon the special circumstances in each instance. These include governmental powers, financial conditions, franchise rights, political conditions, and other factors. What may be desirable in one case, may not be attainable in another instance. A doctrinaire position either in favor or against public ownership and operation is dangerous.

The Public Character of Utilities

It is important, however, to emphasize the public character of the utilities. The companies are engaged in public service. This public character is not changed by the fact that the operation is in the hands of a so-called private company. The public rights remain unchanged, and the obligations and restraints are determined by public standards. Public regulation is based upon the public character of the utilities.

If we were starting anew, it would probably be desirable in most instances to institute public ownership and operation. There are inevitable conflicts of interest when a public function is carried on in the form of private enterprise. But we face the fact that the utilities are mostly privately owned, and that they are entrenched through franchise rights and financial ramifications; and that there would be grave difficulties to overcome if public ownership were to be instituted. There is, therefore, the question, in any case, whether the continuance of the present system is not preferable to a shift to public ownership, in the face of legal, financial and political difficulties. The question is whether, for the most part, it is not better policy to improve the methods of regulation to serve more effectively the public interests, than to strive for the general establishment of public ownership. But the two movements can be, and, doubtless, should be and will be, carried out or advanced simultaneously.

Consolidations of Electric Companies

In the electric field, there is a special condition that requires consideration, which applies much less to other utilities. In this field there have been extensive consolidations and the development of far-flung holding company systems. These have been based, to a large extent, upon the economies realized from large-scale production and operation. This is due in part to the lower production costs in large generating stations, in part to better load factors derived from consolidated areas, and in part from the coordination of service and the elimination of unnecessary duplication of effort. There is doubt whether the consolidations have not gone much further than their basic economic justification. There is, undoubtedly, full justification for the consolidation of production and transmission. There has been probably much less justification in including the local distribution systems. For the future, it would probably be desirable to limit as far as possible the scope of further consolidations to production and transmission, and to leave distribution to local companies or to the municipalities or other public bodies.

With such differentiation between functions, it would probably prove desirable to leave production and transmission in the hands of private companies under public control, but to make public ownership easily attainable for local distribution. In this field, public ownership would have the advantage of close coordination with other municipal activities, and there would be the avoidance of unnecessary salaries and excessive overheads. There would be, also, the avoidance of valuations in connection with the distribution properties. On the technological side, there would be little gain in the consolidation of managerial and technical service furnished by the holding companies.

Make Cities Free to Own Utilities

The municipalities should be given the full right to establish municipal ownership and operation to the extent that they desire. This right should not be left as a mere abstraction, but should be made real through changes in the law with respect to financing and the purchasing of property. The municipalities should be free to negotiate for the purchase of existing properties, or to construct new facilities, if existing properties cannot be acquired at a reasonable price.

With regard to production and transmission, municipal ownership and operation would hardly be feasible in most instances. Except in the case of the larger cities, the greatest economy would be achieved by the consolidation of large areas, which would even go beyond the reach of individual states. There is no public agency available now through which such consolidation could be effected. There is hardly any other course for the indefinite future, than to rely upon private companies for this particular function. In the case of special projects, however, public organization may be readily provided. This applies to such instances as St. Lawrence water power, which would probably be best developed through a public agency of the state of New York; while such projects as Muscle Shoals and Boulder Dam would probably best be brought under direct Federal Government operation.

EDITORIAL NOTE: THE AMERICAN CITY wishes to express the conviction—with which Dr. Bauer states he is not in conflict—that the small municipal generating plants are economically justified in a great many instances, where modern equipment is employed, particularly diesel engines, and that cities of moderate size can also obtain satisfactory results with up-to-date steam plants. Local water power, where available, is another source of power the successful utilization of which is not a monopoly of either the power companies or the large cities.

Even if the mere cost of generation should show a differential somewhat against a local plant, the advantages of physical, financial and political independence from private power companies should be very carefully weighed in the balance as well.

Wake-Up and Clean-Up Weeks

Providence, R. I., Institutes a Novel Method of Capitalizing the Civic Spirit of the City

By IRVING STONE
SUPERINTENDENT,
INCINERATOR DEPARTMENT,
PROVIDENCE, R. I.

FOR over two years the city of Providence has been operating its new incinerator with gratifying results. This plant was described in some detail in the August, 1928, issue of THE AMERICAN CITY. A study of collection, incineration and administration costs over the fiscal year beginning October 1, 1928, and ending September 31, 1930, shows that for a population of 280,600 distributed over an area of 18.34 square miles the total cost of collection, incineration and administration per family of 5 per day was approximately 1 cent. The total cost of collection was $132,665.73, the cost of incineration $60,913.34, and the cost of administration $6,110, totaling $199,689.07. A total of 38,696.8 tons of refuse was collected and incinerated at a cost of $3.428 per ton for collection, $1.574 for incineration, and $0.157 for administration, or a total of $5.159 per ton.

Preliminary Campaign for Clean-Up Week

As a preliminary to Educational or Wake-Up Week and Clean-Up Week, a special effort has been made to reach each individual who has come to Providence and inspected the incinerator, to determine the impression which the plant has made upon him. The letter which was sent to each individual outlined the program which is to come and then made the following request:

"We will appreciate your writing us giving the impression our plant made upon you during your tour of inspection; also, whether or not, in your opinion, the plant has every facility necessary for the clean and efficient disposal of garbage and rubbish."

From the responses received, material was gleaned for the educational campaign, and has been very helpful in showing to our city the opinion of authorities outside of our political limits the value and excellence of the plant we are operating.

Educational Week

Educational Week, or what may also be termed Wake-Up Week, has been planned for April 7 to 12, and it is the primary purpose of this week to acquaint the public of Providence with the new and improved method of garbage and rubbish disposal, namely, incineration. During this week, the incinerating plant will be open to the public for inspection and observation of the process employed to destroy the city's wastes. Officials of the Incinerator Department will be at the service of visitors to explain every detail of the plant's operation and to answer all inquiries.

Next Comes Clean-Up Week

It is hoped that through the large number of people visiting the plant and the space devoted to Educational Week in the public press, a genuine desire to make use of the disposal plant will be firmly implanted in the citizens' minds. Thus, when the week of April 14-19, designated as Clean-Up Week, rolls around, it is expected that much will be gained.

Visit the Incinerator!

That is the invitation of the Incinerator Department to the citizenry of Providence as a part of its program initiating a Bigger and Better Clean-up Week. Read the publicity that was spread throughout the city. This is the month of the Clean-up. We shall report results in a later issue.

With the cooperation of the Fire Prevention Bureau of the Providence Fire Department, the Health Department and the Providence Safety Council, every effort will be made to urge the people of Providence to remove from attics, cellars, sheds, garages and other places all combustible material of no value and send it to the incinerator, thus aiding in cleaning and beautifying the city as well as setting up safeguards against fire and unsanitary conditions.

From the "Suggestions for Clean-Up Week" widely distributed about the city, the following are quoted:

"In order to have the work done systematically, all material to be collected should be placed in an accessible place in the yard, to be collected on the regular collection day by the employees in the Incinerator Department, April 14 to April 19.

"During the Clean-Up Campaign, householders should not place any garbage or refuse on the sidewalks or streets.

"To avoid littering the yards, sidewalks or streets, do not overload your receptacles.

"All combustible material such as tree brush, old furniture, mattresses, etc., should be tied up in lengths that will not be over 4 feet. All of this is to be destroyed at the incinerator.

"This Clean-Up Campaign is done to place Providence on the map as a clean city. It is made a domestic collection. This collection is not extended to the building trades or commercial wastes. Old mortar, bricks, shingles, gutter tin from roofs, should be removed by the owners or contractors. Clean up the back yards, cellars, attics, garages, and sheds.

Get Rid of Rubbish

"In every home there are accumulations of things thrown aside for future disposal. These things are of no value. They are in the way. In some cases they are dangerous because they add to the chances of fire and make it harder to put out a fire if it is once started. They make it harder to keep out bugs, rats and mice.

"Don't clutter up your home with such rubbish. It is no good—and it is always in your way. Get rid of it. Make your house cleaner, safer and more attractive and more comfortable to live in.

"The Incinerator Department has only sufficient funds to make the regular collections on the regular days. If the householders and citizens will cooperate and comply with the above suggestions, the Department will be able to clean up the entire city without any extra expense to the taxpayers or citizens of Providence.

"All Providence is with you.

"This is a city movement, a movement to make Providence cleaner, safer and more attractive.

"Every resident of Providence who has home interest at heart, as well as Providence's welfare, is cleaning up and painting up.

"Look at your cellar today—your attic —your yard. Gather together the rubbish and dirt and get it ready for the Incinerator Department to take away.

"And remember, while your individual efforts help make Providence cleaner and safer, you are the one who benefits most.

"Cleanliness Means Safety and Health."

Collecting and Disposing of City Refuse

Municipal officials charged with the collection and disposal of the garbage, rubbish, etc., of their cities will be interested in the short items on page 19 of this issue of THE AMERICAN CITY giving costs and other data on this important municipal activity.

PICTURES AND PARAGRAPHS FROM NEAR AND FAR

Courtesy Atlanta Chamber of Commerce

Atlanta's Splendid New City Hall

This 15-story skyscraper structure, completed at a cost of over a million and a quarter dollars, is at the corner of Washington and Mitchell Streets close to the State Capitol and to the Fulton County Court House. Its ground floor dimensions are 116 by 160 feet. Above the fourth floor, the building sheers back to a tower, 50 by 82 feet, and continues at these dimensions, with only small step-backs at the top, to its full height. The building is of steel construction; the exterior materials—marble, granite, brick, and terra cotta—are all native products of the State of Georgia. The architects, G. Lloyd Preacher and Co., Inc., of Atlanta, have made elaborate use of Gothic ornamental detail in a structure fundamentally modern in design

Detroit Educational Bulletin

Pursuing a Long-Time Program

The "Detroit News" has organized a Michigan reforestation program which is engaging the enthusiasm of thousands of school children, among others

Ways of Lacy-Patterned Loveliness

These are street scenes in Buffalo where present-day citizens, indebted to their forefathers for a heritage of fine trees, are perpetuating this heritage. (Right)

A Thought for Arbor Day

"There are cedars in Lebanon which the axes of Solomon spared, they say, when he was busy with the Temple; there are olives on Olivet old enough to have rustled in the ears of the Master of the Twelve. . . . If you are a notable and wish to be remembered, better plant a tree than build a city or strike a medal—it will outlast both."

—Alexander Smith.

American Forests and Forest Life

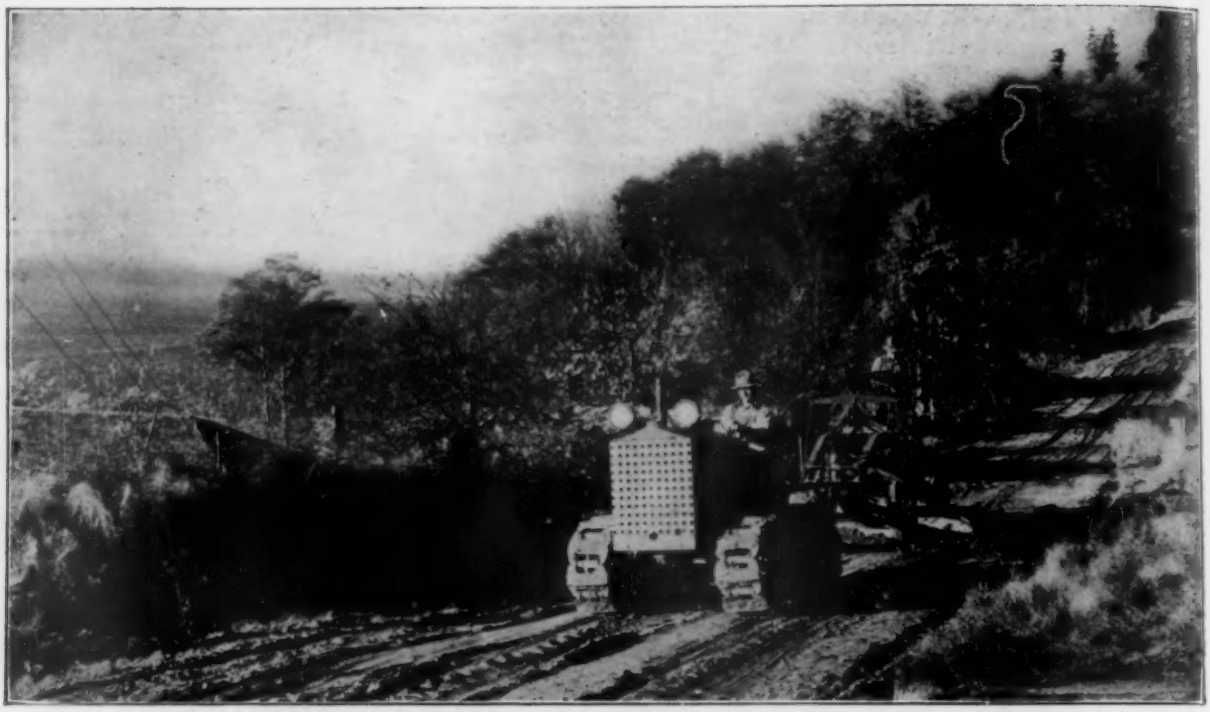
George Washington's Elm

The Father of Our Country planted this tree at Berkeley Springs, West Virginia. It measures 21 feet in circumference at its base

Photograph by Alice Williams

In Dixville, N. H.

(Right) Where highway department and adjacent owners have left the trees in their natural beauty



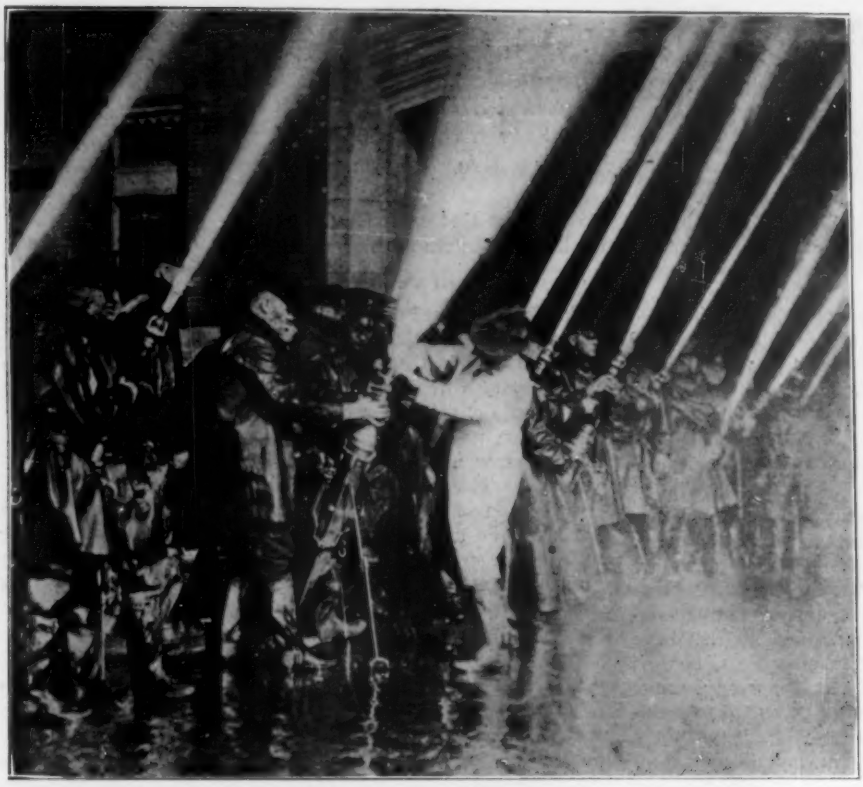
A New Road Along Puget Sound

In this and similar enterprises being carried on by officials of Snohomish County (Wash.) officials, a Cletrac 40 and Adams leaning-wheel grader are used

International Photo

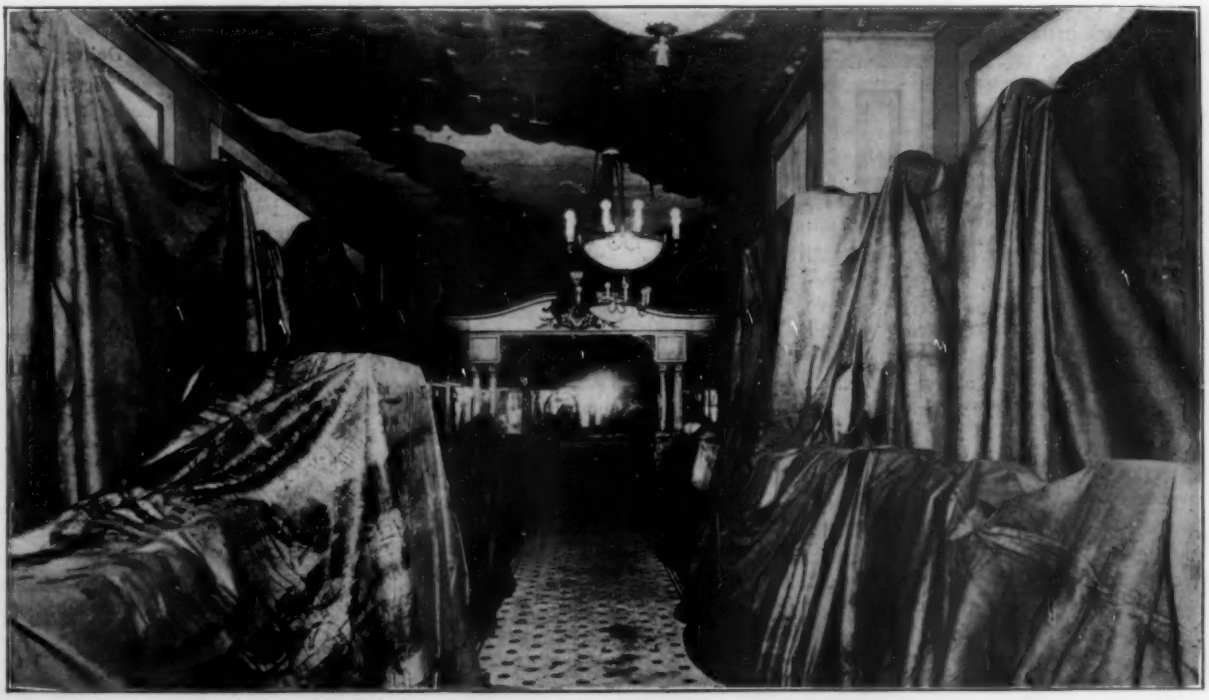
Just Another Reminder—

This $200,000 fire in Newport, R. I., was beyond control for five hours, during which two buildings in the heart of the business section were entirely demolished, and the entire city was menaced. Such disasters but serve to emphasize the importance of a modern, efficient building code including fire-proofing provisions for construction in congested sections in every American city—a code that is brought to the most effective use by vigorous enforcement



A Part of Downtown Boston's Fire Defenses

Above is shown a Fire Department test of the high-pressure water system which materially lessens likelihood of another conflagration in that city's congested district.



How the Boston Salvage Corps Prevents Water Damage

This "Protective Department," now 55 years old, is a fire insurance organization. It operates during and after fires or storms, spreading rubber covers over merchandise exposed to water damage, or over roofs, sweeping out water. and in the case of fires restoring sprinkler service in buildings after the flames have been subdued. Both of the photographs on this page are reproduced from "A Report of Fire Waste and Insurance Rates in Boston," reviewed on page 177 of this issue

An Analysis of Street Cleaning

By E. PHILIP FREDERICKS
STATISTICAL DEPARTMENT,
CIVIC UTILITIES CORPORATION

THERE are very few cities in the country that are not complaining about some phase of the work of their street-cleaning departments. A survey, covering more than one hundred cities of all classes, bears out the general contention that the streets of most of our important cities are not clean. Several reasons can be assigned for this condition, and not all of them can be laid at the door of the street-cleaning department.

Among the causes for the unsatisfactory, and unsanitary, condition of the streets in most of our larger cities are several that would appear to be easily remedied by a reorganization or elimination of many of the methods that have been retained year after year, largely, it is suspected, because it seemed easier to go on in the same way than to introduce radical changes. It can be safely asserted that in the majority of cases the average city has shown less real progress in the department of street cleaning than in any other branch of municipal work having to do with city betterment. The fact that so many cities still adhere to the hand sweeping method is one of the surprising features of any investigation that may be undertaken. It is all the more surprising, too, because within recent years great progress has been made in mechanical devices that would do most of the work quicker, better and cheaper. While cities are quick to adopt every new and improved method of lighting, transportation, sewerage and garbage disposal, paving and better systems of schools, parks, hospitals and other public welfare factors, they still go on, year after year, with a slow-moving, inefficient and relatively expensive and universally unsatisfactory hand sweeping system.

Hand sweeping is of course augmented here and there by certain types of mechanical devices, but it is very seldom that enough of these are installed to materially aid in the general result. The laborious, slipshod hand sweeping goes wearily on, and there has yet to be found any city where this type of sweeping has proved satisfactory or on a par with modern street-cleaning requirements.

There are machines that can thoroughly sweep miles of pavement while the hand sweepers are covering a few blocks, and these same machines will take the dirt away with them, while the best that the hand sweeper can do is to pile the litter in the gutter and leave it there for collection when, as and if a cart reaches that section before the litter has been blown back into the street.

Oust Politics

Politics is blamed in many cities for the retention of the hand sweepers. They will tell you that the ward leaders have to take care of certain followers and provide city jobs for them. To replace these men with machines would be to destroy a very potent source of patronage. This is a situation that can best be overcome by the insistent demands of the citizens that the department be reorganized on the basis of modern methods and modern machinery. No so-called system can survive in any city any longer than the people permit it to exist.

Litter

In most cities in this country the average citizen contributes, perhaps often unintentionally, to the difficulties of the street-cleaning department. We seem to have acquired the bad habit of throwing into the streets and on the sidewalks every scrap of waste or other odds and ends for which we have no further use. This list includes everything from bedsprings and discarded furniture to tiny scraps of paper. The amount of such litter that accumulates in most cities in the course of a day would be sufficient to keep busy a large part of the street-cleaning department in any city.

People who consider themselves tidy and considerate and who are scrupulous about keeping their homes and their own premises free of litter seem to have no hesitancy in using the streets as a sort of common dumping-ground. Nor is the private citizen alone in this disregard for the appearance of the streets. Contractors, builders and truckers conveying loose material are among the offenders in every city and town. The consequent disordered and unclean condition of the streets is naturally blamed on the street-cleaning department.

The cities could help to secure the cooperation of the citizens by providing more receptacles into which small litter could be put. One frequently has to walk blocks to find a can in which to deposit a paper, and in some cities such receptacles cannot be found at all. They do such things better in most of the large European cities, where every block has at least one such receptacle. If a pedestrian in any of these cities should so far forget himself as to throw anything into the street, he is, in nearly every instance, promptly hailed by a police officer, who imposes a small fine, collects it on the spot, gives a receipt for it and warns the offender not to repeat the violation of the law covering such matters. Such a system in any of our large cities, under the prevailing order of things, would very materially enrich the city treasury in the course of the year.

Trend Toward Mechanical Cleaning

In most of the European cities, too, they are making rapid strides in the adoption of mechanical devices whereby some of the chief problems connected with street cleaning and garbage removal are being solved.

Predictions have been made for some time that every modern city would ultimately be vacuum-cleaned just as every modern home is cleaned by the same process.

Sprinkling the streets has about one thing to commend it, namely, it "lays the dust" for a short time. There is no evidence, and certainly no justifiable claim, that this method cleans the streets to any satisfactory extent, nor does it remove the dust that must of necessity get back into circulation as soon as the streets are again dry.

What Cities Are Doing

As an example of just what the average American city is doing in the matter of street cleaning, we can take the case of 1,000 typical cities selected from a group of municipalities of 5,000 population and over. Of this list of 1,000 cities, more than 60 per cent are still using nothing but hand sweeping. It is interesting to note in this connection that New England leads the list in the number of towns employing no other method but hand sweeping. About 90 per cent of the cities and towns in that section of the country depend entirely upon the method referred to.

Of this group of 1,000 cities, 7 per cent use hose flushing to augment the hand sweeping; 17 per cent use horse-drawn rotary brushes, with and without sprinkler attachments; 9½ per cent use tank flushers; 8 per cent use pick-up sweepers, while 2 per cent use additional motor sweepers of other types.

Of this same group of cities, 20 per cent do no cleaning at all in an organized way; 15 per cent clean their streets occasionally as the emergency arises; 33 per cent go over the principal streets once a week. The rest clean up at irregular intervals, sometimes twice a

month, or every ten days at the most. These figures may be fairly accepted as representative of the country at large.

The Solution

A summary of the specific conditions existing in more than one hundred of our largest cities shows that three factors play an important part in the solution of many of the street-cleaning problems in the average city.

First: Educating the public to cooperate with the city by refraining from throwing litter into the streets and by helping to keep the premises around their homes and places of business free from unnecessary refuse and waste material.

Second: Cooperation of the police and health departments, in the first instance in respect to regulating parked cars, and in the second instance by the more rigid enforcement of sanitary regulations. In this connection the system in force in Washington, D. C., as it affects police aid, could be studied to advantage by other cities.

Third: The abolition of obsolete methods and the installation of modern systems and the acquirement of the latest approved types of mechanical equipment. The latter would most certainly result in a great saving in labor, time and money.

How Many Retail Stores of Different Types Does a City Need?

A Tabulation of Special Interest to Chambers of Commerce and Zoning Boards

By GARDNER S. ROGERS

ASSISTANT MANAGER, CIVIC DEVELOPMENT DEPARTMENT,
CHAMBER OF COMMERCE OF THE UNITED STATES

IN practically every city having or contemplating adopting a zoning ordinance the problem of the number of retail stores per unit of population becomes fundamental. Relatively few comparative figures have been available. The Chicago Regional Plan Commission made a study which shows that there are approximately 50 linear feet of business frontage for each 100 population. A study made by the Milwaukee County Planning Commission gives the relation as 55 feet per each 100 population, and the Los Angeles Planning Commission gives somewhat higher figures. All these comparisons, however, are based on front footage, and little or no reference has been made to the heights of buildings or the different types of business.

In 1928 the United States Bureau of the Census made a census of distribution of the following eleven cities: Atlanta, Ga.; Baltimore, Md.; Denver, Colo.; Fargo, N. Dak.; Kansas City, Mo.; Providence, R. I.; San Francisco, Calif.; Seattle, Wash.; Springfield, Ill.; Syracuse, N. Y.; Chicago, Ill.

Using these figures I have prepared tables showing:

1. Number of inhabitants for each of the 47 different types of retail business
2. A coefficient by which may be determined the number of stores of each type of business required by a given population
3. Average number of employees required for each type of business
4. A coefficient by which may be determined the number of employees required by each business for a given population

The table should be useful to determine roughly the demand for new stores in anticipation of an increase in population or the business opportunities of the stores now existing. For example, a small town in the state of Washington is expecting within the next year to have its population increased approximately 9,000 due to the employment of 3,000 workmen on a large power project. These 9,000 persons would require approximately:

1. 3 bakeries employing a total of 14 persons
2. 9 confectionery or soft-drink stores employing approximately 19 persons
3. 6 drug stores employing approximately 27 persons
4. 1 florist employing approximately 4 persons
5. 5 gas and oil stations employing approximately 17 persons
6. 7 meat, poultry and fish markets employing approximately 18 persons
7. 27 groceries employing approximately 64 persons

It is appreciated that the figures shown in the tables are based upon the average of only eleven cities located in various parts of the United States, but they should be useful in providing a rough check of business necessities.

Kind of Business	Number Inhabitants per Store	Number of Stores per 10,000 Inhabitants	Average Number of Employees per Store	Store Employees Needed per 10,000 Inhabitants
Art and Antique	13,371	0.748	3.2	2.39
Automobile	6,673	1.49	13.0	19.37
Automobile Accessory	3,270	3.06	3.3	10.10
Bakery	2,548	3.92	4.0	15.68
Boot and Shoe	3,346	2.99	4.2	12.56
Building Material	6,960	1.44	12.1	17.42
Cigar and Tobacco	2,071	4.83	1.9	9.18
Clothing and Furnishing, Men's Ready-to-Wear	2,397	4.17	4.5	18.76
Clothing, Women's	4,063	2.46	10.3	35.34
Coal, Wood and Ice	5,205	1.92	6.8	13.06
Confectionery, Ice Cream, Soft Drink	1,017	9.83	2.2	21.63
Custom Tailor	4,245	2.36	3.7	8.73
Dairy and Poultry Product	11,772	0.849	15.5	13.16
Department	53,486	0.187	556.1	103.99
Drug	1,545	6.47	4.8	3.11
Dry Goods and Notions	2,065	4.84	3.5	16.94
Electrical Appliance and Supply	9,057	1.10	6.6	7.26
Florist	6,686	1.50	3.7	5.55
Fruit and Vegetable	2,510	3.98	1.8	7.16
Fur and Fur Clothing	19,118	0.523	6.3	3.29
Furniture and House Furnishing	2,388	4.19	7.6	32.24
Gasoline and Oil	1,643	6.09	3.2	19.49
General	90,569	0.11	5.9	0.65
Grocery, Delicatessen	325	30.8	2.3	70.84
Hardware	2,748	3.64	3.1	11.28
Hat and Cap, Men's and Boys'	26,638	0.375	2.6	0.97
Hay, Grain, Feed	33,795	0.296	3.7	1.10
Jewelry	4,958	2.02	4.0	8.08
Junk	36,131	0.277	3.3	0.91
Meat, Poultry and Fish	1,189	8.41	2.5	21.03
Millinery and Artificial Flowers	6,134	1.63	3.7	6.03
Motorcycle and Bicycle	57,565	0.174	2.0	0.35
Musical Instrument and Sheet Music	12,239	0.817	6.9	5.64
Office Equipment	15,473	0.646	10.0	6.46
Optical Goods	26,995	0.370	4.3	1.59
Paint, Oil, Varnish and Glass	11,772	0.849	3.3	2.80
Photographic Supply and Camera	63,483	0.158	3.0	0.47
Plumbing and Heating Fixture and Supply	9,447	1.05	5.2	5.51
Radio	18,309	0.546	3.4	1.86
Restaurants	813	12.30	8.7	107.01
Sporting Goods	44,985	0.222	3.6	0.80
Stationery, Book, Magazine, Paper, Paper Goods	6,402	1.56	7.0	10.92
Toy and Game	83,860	0.119	2.5	0.30
Trunks and Leather Goods	21,227	0.471	3.6	1.70
Typewriting and Calculating Machines	40,193	0.249	12.0	2.99
Variety	18,610	0.537	24.0	12.89
Unclassified	5,718	1.75	14.1	24.68
Average	72	138.89	5.2	722.23

HOBOES HEAVEN: TRAMPS ASLEEP WHERE CHILDREN SHOULD BE PLAYING, IN A $190,000 PARK

THE RESERVOIR TURNED INTO A DUMPING GROUND INSTEAD OF FUNCTIONING NORMALLY

A Councilman Campaigns with a Camera

By

"PROBONOPUBLICO"

THE camera is seldom called upon as an ally in a municipal campaign. But this past fall, when the writer was a candidate for public office, he decided to use his experience as an amateur photographer and six years as a chamber of commerce secretary, when he had learned to analyze civic conditions, and with the aid of photographs to show the voters of his city the strong points of his own party's platform and the weak points of the other party.

The party in power was making valiant efforts to remain in power. Despite a great increase in the cost of carrying on the city's business and the more than doubling of the bonded indebtedness of the city during the eight years the party had been in power, a number of showy (though very expensive) municipal improvements had been made, which tended to blind the voters to the shortcomings and defects of the party in power.

Photographs to Show Things Up

It seemed to the people of my party that graft and corruption, wastefulness and license, brazen disregard of the rights of the common man in every way and an appalling kowtowing to bossism of the worst sort were rampant. So, with the aid of pictures, we decided to show up the parts of the ruling party's municipal life to which we took objection.

Unfair and inequitable tax assessment became a burning theme. By pictures which we had made into slides and which we showed three times every night wherever we could secure an audience, we revealed how twin houses might be taxed in the ratio of 60 to 35, in favor of some satellite of the party in power. We found one case where the widow of a prominent politician lived in a house similar in every way to five neighbors' houses. She was assessed for $5,000, while all of her neighbors, of the opposite political faith, were assessed $10,000. Two houses in the outskirts of the city were shown with a lot between, owned equally by the two home owners. The man who belonged to the party in power was not assessed for any part of the lot, but the man "on the outside looking in" was assessed for the entire amount. Business property was taxed according to the way the owners voted and not according to the value of the property.

The parks and playgrounds were in miserable condition. Unmolested by the police, tramps slept on the lawns of a riverside park, designed as a breathing-spot for poor people, and several of the largest parks were used for public dumps, which attracted flies and rats in great numbers, drawn thither by the garbage. Lawns were made into cow-paths, by short-cutting workers and skaters, and the war memorials were defaced by vandals, with no apparent objection by guards or policemen. All of these we photographed to show on the screen.

Traffic is always a great problem in any growing town. In our town we had fine parking signs and ordinances on the books, but no enforcement on the streets. We showed many violations of cars parked near hydrants, cars parked on the prohibited sides of the street or in the wrong way, cars going the wrong way along one-way streets, over-night parking, etc. We revealed six of the busiest street corners in our downtown section where no policemen were on duty. We took pictures showing firemen doing policemen's work as traffic

THESE AND SIMILAR HOUSES WERE ASSESSED FOR $10,000 EACH, EXCEPT THE ONE BEHIND THE AUTO—ASSESSED FOR $5,000 BECAUSE OWNED BY THE WIDOW OF A PROMINENT POLITICIAN

THE SWIMMING POOL WAS CLOSED THROUGHOUT THE PAST SUMMER BECAUSE OF TYPHOID AND DIPHTHERIA. IT IS NOW A DISGRACEFUL NEIGHBORHOOD DUMP

directors at school crossings, with many policemen on fixed posts in the old Tenderloin, where rumor had it they were checking the patrons of certain types of houses so that later the proprietresses could be "seen" for assessments.

A Supposed Reservoir a Public Dump

Through carelessness, the entire city, with the exception of a few wards, had been entirely shut off from water for every purpose the first of last August, with untold suffering and embarrassment to the people. We showed how a supposed surplus source of water had been turned from a reservoir into a public dump. We also took up the matter of the new $10,000,000 water-supply and showed many pictures of the inadequacy both of the supply and of the retaining dam, the slowness of the contractors to prepare the site, and other interesting facts about the water-supply.

Policy selling even to children was so common that no one paid much attention to it. So we took pictures of policy slips sold to children, and places where protected gambling, policy selling and commercialized vice were allowed, which caused a great eye-opening to those who saw the pictures and heard the talk which went with it.

Clean streets was a plank in our platform, and we had many pictures of the lack of an adequate garbage collection system, poorly kept streets, and streets with grade crossings used as playgrounds by children.

Highly paid-for concrete walks and pavements which cracked and doubled with the frost after having been laid a short time, were photographed for the eyes of the voters.

An ill-kept riverfront with tramps sleeping on piles less than fifty feet from the bridge over which all incoming train and vehicular traffic crossed, made a great impression, especially since the administration had been stressing the new riverfront improvements in connection with a coming ocean port.

Appalling Snapshots

Five entrances of the city were shown and made a great hit. At one was a tumbledown house assessed for $5,000, only a few hundred dollars less than the splendid house of the "boss" of the administration: Bridges with decaying roadway, a paving job where discarded sand was being used to fill in the swampy lot of a political friend, while gravel was presumably being paid for at public expense to take the place of the superior discarded sand, magnificent century-old elms being ruthlessly cut down to make way for a hedge of telephone poles, eyesores, fire hazards, etc., made a gloomy but convincing lot of pictures.

A $50,000 lake house, for which the city had to pay $125,000; a Junior High School which had already cost $1,650,000 despite the original estimate of only $800,000; a swimming pool in a park with an annual budgeted upkeep of $25,000, but dry all summer because of some infectious and contagious disease prevalent; streets which took many unnecessary months to pave; dirty ill-kept school playgrounds and overcrowded schoolhouses where dozens of children had to study in basement rooms, were photographed and held up for the public to study.

An overcrowded market where the

WHAT ONE VOTER THINKS OF THE PARKING ORDINANCE HIS PARTY WROTE ON THE BOOKS

greed of the administration led the city to rent the piazza of the public comfort station as a soft-drink stand; truly awful living conditions for the colored population of the city; dumps in good residential sections, and a public library built with "honest graft," in the heart of a neighborhood which greatly desired good library facilities, finished for a year, without a book in it, were also subjects for the camera.

Practical Points

In addition to the pictures used as slides, 50,000 12-page booklets were printed containing 25 photographs, with well-written captions, and sent by mail to every household in the city previous to election.

The slides were used before every kind of audience, from women's organizations to employers' groups, trade unions and veterans' posts. Their great advantage was that "photographs do not lie," especially when a number of good caption and slogan slides are liberally distributed among the pictures. The cost is about 50 cents a slide, when made from original negatives, and about half as much again when slides are made from cartoons, newspaper clippings, etc. The latter are very devastating in their effect and make a great impression in opposing ranks. The great disadvantage in slides is the difficulty of carrying around a heavy box of 150 slides, a projecting machine, no matter how "portable" and a sheet. I had a sheet made eight feet square on two shade rollers and encased in an oilcloth bag, like a fly rod. It will go into the ordinary taxi or auto very handily. When the speaker talks at the same time he runs his lantern, the speech is very effective. He can hold a slide long enough to make his point, and then show another one as fast as he can talk and change the slides.

In the next campaign we hope to rig up a portable projecting unit on a truck, so that we can show the slides against a screen in the rear of a truck for street corner rallies, as well as hall rallies and meetings. "Seeing is believing," goes the old motto. And the use of well-taken photographs by a person with a "nose for news" will more than pay for itself in any political or other campaign. Photographs to be useful must be given the widest possible publicity. That should be the problem for the campaign manager to solve. As he solves it, so will his party's success be. Let the candidates for public office study their home town, for the inevitable "Picture Ahead."

A Way to Keep Boys on Summer Playgrounds

IF there is a boy in the United States who doesn't want to make a fishing reel, a portable tool house, a dog kennel, a marine telescope, a herbarium press, a sectional bookcase, a live-bait box, a ski-scooter, a water-motor or a one-boy see-saw, he will be certain to find things that do appeal to his zeal for carpentering among the 105 objects for which descriptions and working drawings are given in "You Can Make It," Volume 1.

The United States Department of Commerce Committee on Wood Utilization has published this remarkable pamphlet because it has discovered that between three and four billion feet of lumber is used annually in boxes and crates, and after serving its original purpose is thrown away or wasted; that this lumber, if all together, would be enough to build about 400,000 average size frame houses; and that its piecemeal utilization by playground boys, and others, may be an endless source of education, entertainment, pocket-money, and exhibits for the fall playground hobby show. The playground shelter house, the community center basement, and the school manual training rooms, are among places that have already been made available as boys' woodworking shops in different cities. Playground and recreation departments have found that city trucks are often available to collect boxes and crates. Directions for a "You Can Make It" contest have been prepared by the Committee, and will be sent upon request. The "You Can Make It," Volume 1, booklet is 10 cents per copy, or $4 per 100 copies from the Government Printing Office, Washington, D. C.

A New Geometric Solution of the Old Museum Problem

Here Functional Planning Is Fundamental, and Department Encircles Department

THE art museum appeals to different groups in different ways. The general public visits it for enjoyment and inspiration; students and craftsmen go for information. The average museum of today serves neither group satisfactorily: it confuses its functions of education and inspiration, and subjects its visitors to the endurance test of endless wanderings through irrelevant and unrelated galleries.

In restating the old familiar criticism that there's something wrong with the museums, as he does in the above fashion, Clarence S. Stein, New York architect, designer of the notable new Wichita Art Museum, has the purpose of showing that the problem involved is fundamental to museum planning.

In "The Museum of Tomorrow," Mr. Stein states, in *The Architectural Record*, January, 1930, six essentials to which the problem is reducible, and presents complete diagrammatic plans for a great structure in which the parts are so related as to provide these essentials:

"To give direct access to the collections a visitor wishes to see, without the necessity of his passing through other collections.

"To give the casual visitor an idea of the beauty of art works of the past by showing him a few objects *well placed*. He wants inspiration first, instruction later.

"To give the student and craftsman easy access to, and the facilities for, the study of all material the museum may possess.

"To connect the museum of the general public with that of the student, so that the casual visitor who becomes interested in any type of exhibit may follow his interest further and go from the rooms containing exhibitions directly to those for study of the same subject.

"To give all visitors to the museum an opportunity from time to time to glimpse garden and outdoor vistas. Nothing causes so-called museum fatigue so much as miles of rooms filled with inanimate objects and allowing no sight of living nature.

"To arrange the unseen machinery that keeps the museum running in a logical, related manner."

SCHEMATIC PLAN
The public's museum forms hub and spokes; the student's museum, the rim

The Public's Museum

In the museum of today there is too much to see.

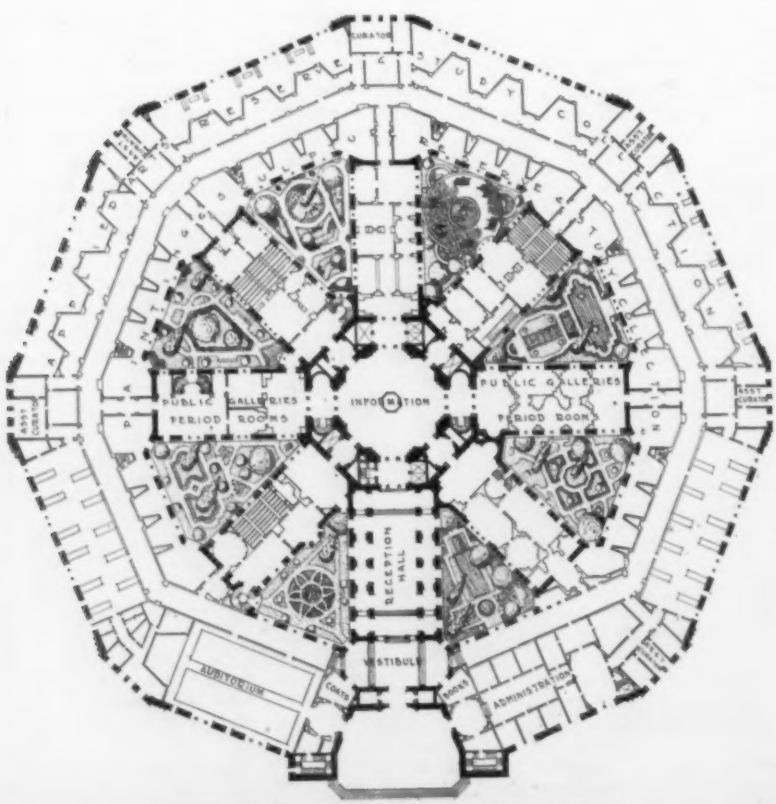
"The museum of tomorrow will show the casual visitor a limited number of its choicest possessions, every object so placed as to accentuate its individual beauty. . . . From the central rotunda, he may enter any one of seven groups of small rooms exhibiting in a related manner the choicest masterpieces of the museum in both painting and the related arts. He can ask direction at the information desk, placed at the hub as that in the Grand Central Station, New York. Elevators lead to collections on the upper stories. Every collection of the public's museum on every floor will be directly accessible from the central core of the building."

"To reach the central rotunda from the entrance the visitor has but to pass through a vestibule and a reception gallery, a place of gay beauty. At either side of the gallery, he will find a series of alcoves. . . . Through the windows he will see courts arranged with brilliant flowers and tiles and sparkling fountains. In the reception gallery there may be a few tapestries, some pieces of sculpture, and a lovely group of furniture, to be used, not merely to be examined."

The Student's Museum

"The museum which will give understanding to the student requires quite a different arrangement. . . . The student needs a comprehensive view of what he is studying. Every authentic work which the museum finds worth keeping should be arranged in an orderly, systematic manner so as to facilitate research, comparison, and study. . . . The public's museum will be selective, the student's comprehensive.

"The student's museum will encircle that of the public. Both will be entered from the same vestibule. The one radiates from hub to core, the other follows the rim. The spokes connect the two. The contents of the radiating wings are in every case directly related to that portion of the reference collection found at its outer edge."



MAIN FLOOR, "THE MUSEUM OF TOMORROW"

Streets and Highways in a Land of Ice and Snow

By KING HAMILTON GRAYSON
CONSULTING RESEARCH ENGINEER

AMERICAN city dwellers, used to all the modern conveniences of their streets and highways, probably give little thought to what those who live in out-of-the-way places are doing toward duplicating these facilities. In a far-away corner of the world, where business customs and agricultural methods a thousand years old are still in use to a great extent, modern motor highways, streets and traffic lanes, and automobiles, trucks, and busses have driven a wedge which is widening its path with each passing year. The people of Iceland have awakened to the value of modern motor transportation as a means of exploiting the rather limited resources of their native land, and they have begun to apply the principles with a fervor that would do credit to many larger and wealthier countries.

MAP OF ICELAND, SHOWING EXTENT OF ROAD CONSTRUCTION

The Motor Car in Iceland

Fifteen years ago automobiles were unknown in Iceland, except as possibly here and there a citizen read of them in some Danish publication. At the end of 1928 there were 600 registered cars, one-half of which are in the capital, Reykjavik, and 95 per cent of which are of American manufacture. And today, motor-bus lines are in successful operation between the capital and Thorsau, and have become exceedingly popular and profitable. This has led to a demand for improved streets and highways—motor roads in a country typically regarded as a land of ice and snow. In fact, today, Iceland's most urgent need is more highways to meet the modern traffic situation! This may seem very odd to many Americans who regard the little island as cold, bleak, and barren.

The total population of Iceland is 103,317, half of whom live in the cities; 20,657 of that total are in the capital alone. The agricultural sections of the island lies along the south and west coasts, and until the advent of the motor car these widely separated districts were barely connected except by fishing and coastwise boats. The interior of the island is a vast icy waste, unfit for human use.

However, in the limited habitable districts there are some 2,000 kilometers of roads and streets, and of these, more than 600 kilometers have been made fit for motor use. Because of increased motor importations, particularly of busses and trucks, the Icelanders have undertaken what, for their country, is a very extensive highway program. The prosperity of the people is dependent upon the speed with which crops can be marketed, and the farmer has become intensely enthusiastic about motor trucks as the result of the road-building plans.

Road-Building Conditions

The center of the island is a tableland which slopes to the north and to the south, with an average of 2,000 feet above sea-level. This tract is composed of arid sands and rugged stretches of lava, frequently broken by ice hills which rise 4,000 feet high. The soil in the agricultural sections is often boggy and marshy, necessitating considerable filling of lava stone to provide a good foundation for the motor highways. Where the highways cross the lava beds, the cost of road building is confined largely to the work of blasting. These former molten streams are invariably about 50 miles in width, and the layers average 100 feet in thickness; although many of them which separate the seacoast towns average only 12 to 15 miles in width.

The farming settlements rarely extend over 50 miles inland from the coasts. Consequently, the main motor road is to be a ribbon running along the coast, with feeder lines to it from each valley to serve the farmers. The soil through these fertile valleys is mostly volcanic ash, and once the road foundations are laid, this ash surfacing packs fairly solid and remains in good condition under the average climatic changes. The temperature at the capital averages 39 degrees annually, with that of the summer months at 53 degrees, and during the winter 29 degrees. The Danish engineers in charge of the work are making several exhaustive tests on short stretches of highway, with the idea of creating roads that will withstand both climatic and traffic strains.

The Program

The road program is divided into sixteen sections according to provinces, in which those within the seven larger municipalities will receive the first attention. The gaps between these districts are part of the six-sevenths of unproductive lands in Iceland, and the question of financing the interurban or the interagricultural roads was strongly debated until harmonized through the federal government channels. Highway construction also involved highway regulations; a problem somewhat difficult for the road engineers to handle, because those who operate their own cars in the winter months are inclined to use the native sledges as trailers for freight. It is with this difficulty in view that the tests are being made to determine the best types of highway for use on the main routes, as the present types are only suitable for use during the summer months. However, as the busses and trucks are of equal importance all the year, it is certain that the Icelanders, now that they have enthusiastically adopted them, will construct their streets and highways to meet these requirements.

To What Extent Is Housing a Municipal Responsibility?

By JOSEPH McGOLDRICK

THE American tradition has been one of laissez-faire, of unrestrained individualism. It has brought us many blessings, but it has also brought its vexing difficulties. It is interesting to note that our own rampant individualism has created more problems of government than any bureaucrat or theorist would have had imagination enough to conjure up.

At the moment one of the most grievous of these problems is housing. It is true that the peak of the war and post-war housing shortage has passed, and to some extent public interest in the problem has relaxed. But more important than the remedy of temporary emergencies is the persistent problem of securing suitable housing accommodations amid reasonably decent surroundings for our urban poor. We must not forget that *they* are entrusted with the rearing of a large, perhaps a disproportionate, share of the next generation. The conditions of health and sanitation in which they live vitally affect us all. These conditions we cannot safely ignore or neglect.

Few Cities Without Slums

It is perhaps unnecessary to attempt a definition of a slum, except to point out that there are no large cities without them, and few small ones. There is a mistaken notion that a slum exists only where there are densely built rows of tenement houses. Absence of sunlight is only one item going into the make-up of a slum. The London slums are acres of little two-story dwellings on reasonably wide and clean streets. The dilapidated conditions of their houses, their overcrowding, their lack of such elementary conveniences as bathrooms and washtubs, and their cheerlessness within and without, have made them slums. The first step, then, is a frank admission that every city contains some area, large or small, of sub-standard dwellings and—what is more to the point—other areas which will almost certainly be the slums of tomorrow unless definite and courageous steps are taken to prevent this.

Almost invariably a slum is located on land of high value. It is commonly said that the poor live on the dearest land. The land is unusually valuable because it is on the outskirts of an expanding business and commercial section. The owners are more interested in these appreciating land values than in the development of their property for residential use. They are quite unwilling to make any investment in the repair or remodeling of their buildings, because any day a purchaser may come along who will buy the land for some business building or apartment house. Meanwhile, any tenant who will not be asking for repairs and improvements is satisfactory, because he pays the taxes and permits the owner to hold out for a rise in values. Often the remodeling of these neighborhoods is retarded by the fact that the lots are 50 feet or less in width, much too small for modern multi-family development, and that it is no easy task for a prospective builder to assemble a plot without some one's trying to hold him up for all his profit. Into these slum neighborhoods are crowded the poor and the immigrants who are helpless to demand better things, and the vicious who do not want them.

House-Building Not an American Municipal Function

The actual building of dwellings for its citizens to live in is hardly an appropriate function of government as we understand it in America. There is something incongruous in making the government the landlord of the persons whose servant it is. Perhaps the soundest reason for opposing government-built housing is the fact that, quite aside from social or political objections, governmental money and energy expended in this direct manner accomplish less than in many other directions. A vastly greater number of persons than we could ever hope to see housed in municipal dwellings can be benefited by other things that our cities can do.

The role of the municipality is to assist and, in appropriate instances compel, individuals to meet these community problems. A relatively easy phase of this is the creation of a city plan and the adoption of effective platting and zoning ordinances. Zoning is a great stabilizer of values. To be sure, it will not permanently prevent obsolescence nor halt the march of fashions. It is true, of course, that dwellings are outmoded before they are outworn. But a zoning ordinance will check the deterioration of whole neighborhoods and greatly prolong the life of any residential section of a city. The inevitable processes of decay are much hastened by the intrusion of alterations by which individuals seek to avert the losses which they see are impending. Rarely do they succeed even individually, and the result is speedy loss to their neighbors.

To Prevent Jerry Building

Immediately important, also, is the regulation of the details of construction. Most cities now require all plans and specifications to be filed with some officer who examines them to see that they conform to certain minimum specifications regarding fireproofing, light, air, and sanitation prescribed by the local building code. This is—or should be—followed by a periodic inspection as the work proceeds, and by a thorough examination before a certificate of occupancy is granted. These are important services possible in many cases of substantial development. The local building code is frequently much too timid. It is assumed that these restrictions are a necessary evil which should be reduced to a minimum to avoid hampering local building. Actually, local building needs are determined primarily by the population and the economic life of the city. Jerry-built, ill-planned houses are no asset to any community. They will speedily deteriorate into slums. Substantial building, on the other hand, means stable values; stable values mean stable citizens, with all that these mean to the civic and business life of a community.

When Single-Family Dwellings Are Converted

Building codes and zoning ordinances usually may not be made retroactive. They apply to existing structures only when it is proposed to convert these to some new type of use. A variety of circumstances, too well known to mention, are constantly causing the owners of one-family dwellings to want to convert them to two- or three-family use. In many cases these are owned by small householders who have little money to spend on alterations. It is hard not to be lenient with them, but leniency is often a mistaken policy. Every day we read in the papers of lives lost in fires, and where do the great bulk of them occur? In the converted house. The single-family house receives the least scrutiny at the time of its erection. There is no great harm in this. But if such a house is to become sooner or later the home of two or three families, great care should be exercised to see that it is built with this renovation in view. A much more equitable and more practical alternative would be a rigid control of dwellings to be remodeled.

We are coming to realize that it is in such converted dwellings or in tenements cast off, so to speak, by the more prosperous groups, that the poor of our cities must continue to live. It seems quite clear from both our own experience and that of the English, that there

is a substantial group in most cities earning an income too small to permit them to pay even the lowest rents for which new homes or apartments can now be provided. Unless these ventures are to be heavily endowed, they cannot be made available for the neediest poor. This makes the inspection of the accommodations that will be offered them a matter of the highest importance. However unfortunate their *economic* plight may be, it is not a housing question. It must be approached directly and in its own terms.

The Capitalist's Opportunity for Service and Six Per Cent

We come next to those who are in no sense indigent or dependent, but whose wages are after all modest. They can, and will gladly, pay a reasonable price for decent accommodations. But existing competition for capital has long made it difficult to provide this for them through undirected, unassisted private enterprise. We have come through a boom period in which a six per cent return on a reasonably safe investment offered little attraction. There was much more to be made in other pastures. Perhaps now the departed prudence of the prudent investor will return, and he will quite willingly aid in providing homes for the families of steady workingmen. But it is doubtful whether this will be quite enough. Here is a real opportunity for insurance companies, social welfare foundations and socially-minded citizen investors. There is no work more worthy of their attention than that of assisting in the provision of decent homes for the working populations of our cities. Very frequently all that is needed is willingness to take the risk without asking an excessive interest. It would be hard to think of a better moral risk than an effort to provide homes worthy of the highest aspirations of the American family.

What Does Tax Exemption Benefit?

Reference should be made to another matter that, in the writer's opinion, is hardly within the municipality's province. The granting of partial tax exemption to new dwellings may work a doubtful advantage to the people for whose benefit it is offered. In a purely competitive setting there is no reason why a landlord enjoying such exemption should let his houses at any less than the rent at which other similar houses can be had. If the exemption is designed to encourage building, the advantage is passed on to the builder and his workmen. In either case the occupant gets little advantage, unless an actual shortage is relieved.

There is much more to be said, in the writer's opinion, for the so-called Pittsburgh plan of taxation, whereby all buildings in the city are taxed at a lower rate than that which appears on the land. It seems obvious that such a method of taxation will stimulate owners to put their land to use—for which reason it should be coupled with effective zoning and building code restrictions to prevent land overcrowding.

The real role of the city is in bringing enlightened opinion to bear on the housing problem. The housing of the people of the city is a matter of deep community concern. It is not a problem that can be left to take care of itself. It requires constant attention. It is intimately tied up with police administration, public health, municipal finance, contentment, stability of labor, and real estate value, to take but a few of the widely different facets of this interesting problem. Even the city's direct planning and zoning control is much facilitated by a proper community appreciation of the social significance of housing in the prosperous and proud American city. If house-owners, business men and realtors once appreciate that these restrictions and regulations are not imposed in a meddlesome spirit, but are directed toward the best interests of the whole community, they will regard these and other suggestions not as municipal paternalism but rather as civic leadership.

Twelve Housing Needs of American Cities

A Summary from Addresses by the Editor of THE AMERICAN CITY *at the Recent Conventions of the Massachusetts Federation of Planning Boards, National Association of Civic Secretaries, Pennsylvania Housing and Town Planning Association and Pennsylvania Association of Planning Commissioners*

1. A reasonably accurate picture, based on a careful survey kept constantly up to date, of what our local housing conditions actually are.

2. A clear-cut assignment and acceptance of obligations for housing betterment between the municipal government on the one hand and individuals on the other.

3. Vigorous and effective action, by civic and welfare organizations as spurs and guides to public and private activity.

4. The adoption and enforcement of building and housing codes which will require the highest structural and sanitary standards consistent with reasonable economy in construction costs.

5. The adoption and enforcement of a comprehensive zoning ordinance which will not allow anti-social or needlessly intensive use of the land in any part of the community.

6. Accurate assessment of real estate and more scientific use of the taxing power and of excess condemnation as incentives or aids to adequate and low-cost housing.

7. Adequate control of new real estate subdivisions.

8. Intelligent consideration, by the city government, of the effects on housing betterment and slum prevention of foresighted city planning, adequate transportation, and municipal improvements, such as street widening and paving, playground development, and extensions to the sewerage system.

9. Maintenance of sanitary and safety standards, including periodic inspection of multi-family buildings, and education of tenants by the health and fire departments; and insistence on the rehabilitation or demolition of buildings when slum conditions begin to develop.

10. General acceptance by landowners, building developers and realtors of the fact that their activities have an inescapable relationship to the public welfare.

11. Greater willingness by men of means and financial institutions to invest liberally in large-scale, low-cost housing enterprises, thus helping to solve the housing problem for the lower economic groups.

12. Realization that adequate and wholesome housing for all its members is of vital importance to the whole community, and that, if any families or individuals are unable to pay a fair return upon its cost, proper housing must nevertheless be provided for them. Any discrepancies between economic rent and ability to pay should be met by additions to income, not by reducing rents below an economic level. For those capable of self-support, the line of progress lies in raising wage-rates and in training for more productive labor; while those who are physically or mentally incapable of earning a living wage must be frankly accepted as charges upon the community.

How Local Historic Tradition Enriches the Recreation Life of One City

A Suggestion Worthy of Emulation by Other Municipalities

MEMORY is the treasury and guardian of all things, according to Cicero. So, too, must have decided the Board of Park Commissioners of Los Angeles when it took steps to establish the Memory Garden wherein to perpetuate much of the colorful atmosphere of old Spain as it was brought to the Western World by the Conquistadores and as it still visibly lingers around the ruins of the ancient California missions.

The Memory Garden is in Brand Park, a seven-acre publicly owned area directly facing the San Fernandino mission in the suburbs of Los Angeles, and is modeled after the Sacred Garden at the Santa Barbara mission, the sole survival of the formally landscaped areas originally adjoining the missions. It, and the surrounding areas, constitute an outdoor museum into which are being gathered historic treasures of the early mission days.

The Garden's Design

A motor trip of over 1,600 miles by park officials yielded a wealth of traditional facts and many treasures from the other surviving missions, all of which have been utilized in the creation of the Memory Garden. The boundary walls on the east and west have been made of stone capped by Spanish tile, while to the north and south are pergolas formed of hand-hewn timbers on solid concrete standards of authentic mission design. Entrance gates are provided on two sides, and there is an appropriately designed waiting-station on the eastern side for accommodation of street-car passengers. The interior is laid out in formal geometric designs of diagonals, right angles, ovals, and semicircles, outlined by gravel paths and filled in with a profusion of flowers. Traditionally, into this formal arrangement with its planting from the gardens of Spain and Mexico, the Padres introduced a profusion of native flowers; and this precedent is followed in the recreated garden. Cuttings from the original plants in every existing mission garden, carefully labeled and recorded, have been profusely used with native growth —oleanders, pomegranates, guavas, lemon, lime, myrtle, and orange trees among them.

MEMORY GARDEN SEEN THROUGH ONE OF THE ARCHES
THE SAN BERNARDINO MISSION

The mission border is composed of them. The pergolas support a wealth of climbing plants from among them. Grape vines have been cut from the original parent stalk at the Santa Clara mission, and the Rose of Castile from the San José mission garden. The row of pepper trees have been raised from seeds gathered from the first trees planted at the mission of San Luis Rey. And these are but a few of the specimens used there in the Shadow of the San Bernardino missions to re-create the cloistered scenes of all the 21 mission gardens of early California where the religious fathers walked up and down all day long at their devotions.

There is nothing of a religious nature connected with the garden, therefore it has had the heartiest endorsement and support of the public authorities and of civic organizations and many individuals. The City Council made an initial appropriation of $3,000 to start the work, and agreed to provide dollar for dollar with the money raised by public subscription, which latter totaled $7,000. Many gifts other than money have been made.

The garden is free to all the public. It is a unique possession, of which the city is justly proud; and it is a valuable lesson to other cities, demonstrating as it does the living beauty of brilliant local history. When a municipality constitutes itself treasurer and guardian of its store of ancient traditions, and displays them appropriately to the citizens who are their inheritors, they can but accrue present interest and additional value to the future.

A Peaceful Region

Schemes Prepared by Dr. Ph. A. Rappaport for An Important Section of the Ruhr District

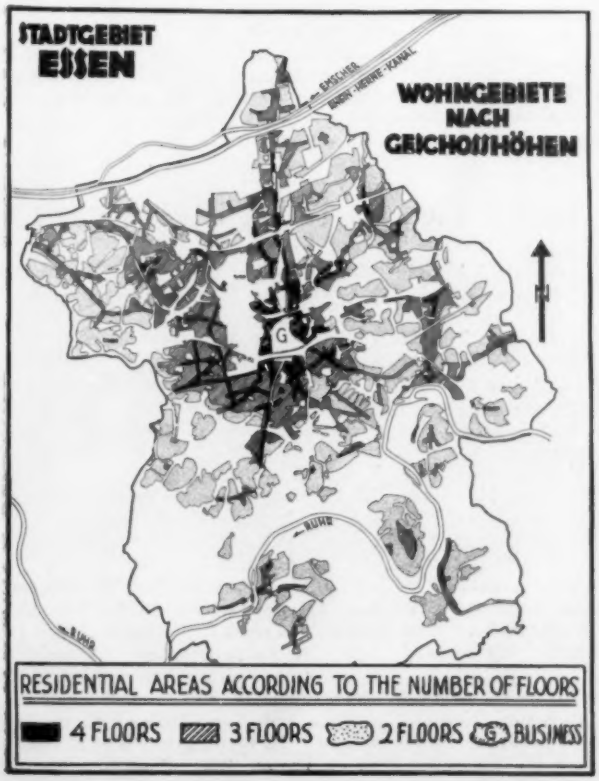
PLANS recently completed and issued in an elaborately illustrated report will, if carried out with characteristic German thoroughness, transform a district, formerly concerned primarily with the production of life-destroying munitions, into one of the world's best-planned regions for peaceful industry and a happy life. This complex and elaborate plan, ordered by the mayor of Essen, and prepared by Dr. Ph. A. Rappaport, Essen, containing fifty large and highly finished maps and sketches, deals, of course, with many details of purely local importance; its suggestions, however, concerning problems to be encountered in practically every big city should claim the careful attention of town planners as well as all civic authorities responsible for the adequate development of their communities.

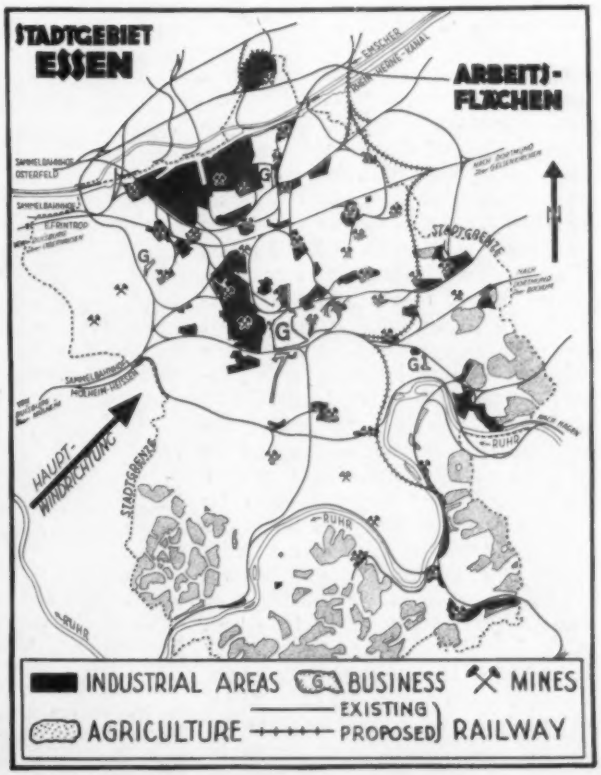
Planned for Greater Essen

By
FRITZ MALCHER

The Regional Plan comprises the city and the county (*Landkreis*) of Essen, with an area of almost 50,000 acres and an actual population somewhat over 650,000, united in one big town, the county having been incorporated with the city by act of the Prussian Parliament, July, 1929. A yearly increase of 1 per cent during the next fifty years is assumed; provision has to be made, accordingly, for future population of one million.

The project advocates a far-reaching decentralization of the residential sec-





tions by providing suburban colonies of small country houses scattered over a wide area. The accompanying map shows the location of these colonies, which will be almost entirely surrounded by park land. Small sections within the colonies will be made available for retail business purposes.

Ultimately, the entire area of the county will be distributed as follows: 20.2 per cent for industrial purposes, for railroads and waterways; 34.0 per cent for residential purposes; 33.6 per cent for parks and playgrounds; 12.2 per cent for colonies and farm land.

Proper means of transportation, connecting the populous northern sections of the city with the southern residential and recreational zones, must be provided. Several first-class highways, encircling the city and avoiding the congested center, will have to be added to the present insufficient street system, which has so far been developed too much in a radial sense. A north-south subway line, cutting right through the city, is suggested. A special motor parkway will lead to the aerial terminus located near the southwestern county line. This airport, by the way, is circular, with a diameter of one kilometer (about 3,000 feet.)

Preserving and Developing Open Spaces

Much thought has been given by the author of the Regional Plan to the problem of parks and playgrounds, and here his conclusions and suggestions are particularly noteworthy. Essen is the heart of the Rhenish-Westphalian industrial district, the metropolis of the German heavy industry. One of the consequences of this predominant position is, naturally, the existence of certain unfavorable conditions such as congestion, smoke and dust, the difficulty or impossibility of providing healthful open spaces where the industrial worker can find fresh air and sunshine within easy reach of the mills and coal mines. The Regional Plan shows how these drawbacks can be offset to a large extent. To begin with, all existing woods and open spaces within the county limits which can be made available as public parks are to be reserved immediately and definitely for this purpose; the present practice, permitting the eventual use of such parcels of land for private building or other purposes, must be stopped at once. The map shows the suggested park sites forming a practically unbroken belt all around the city. As far as possible, only wooded land or areas subject to inundations have been selected. Extensive promenades or footpaths, to be used exclusively by pedestrians, connect each and every parcel of park land. Wherever these paths run through open spaces, trees are to be planted on both sides. The Regional Plan stresses the fact that a pleasant walk is about the best kind of recreation a man of modest means can find.

Parks, Playgrounds and Allotment Gardens

Adequate improvements are being suggested for the Ruhr Valley. This lovely stretch of the river whose shore line is to be conserved as far as possible, runs for over ten miles within the city limits. A huge reservoir to be constructed in its course south of the city should provide a wonderful playground, with all facilities for swimming, boating and other sports. This is going to be the nucleus of the city's recreational zone.

Early acquisition and appropriate development of public park lands are not possible if the specific use to which they are going to be put has not been determined in time. Therefore, the project offers suggestions for the suitable distribution of the entire available area and delimits exactly the sites to be used as parks in the proper sense of the word, or as playgrounds, land to be leased for the purpose of establishing private vegetable gardens, and so forth. It is considered a mistake to lay out sportfields, playgrounds for children and vegetable gardens on vacant lots or land which might eventually be used for building purposes; the project seeks to avoid this mistake by connecting the land designated for public purposes permanently with the entire park system.

Special suggestions are offered concerning those sportfields and playgrounds for children which are located outside the park lands. There, too, trees should be planted so as to provide abundant shade. Great care has been taken to distribute those fields so that they can be reached easily from the different residential sections.

According to the Regional Plan, the future maximum population of one million will have at its disposal:

Sport and playgrounds	730 acres, i.e., 27 square feet per capita
Allotment gardens	800 acres, i.e., 9,000 gardens of 3,800 square feet each, or about 27 square feet per capita
Cemeteries	440 acres, i.e., 18 square feet per capita

The additional large areas of parks, marshland, town forests, etc., in the Ruhr Valley increase these figures to about 630 square feet per capita, an amount of open space to which the industrial population is certainly entitled.

The experiences of other cities seem to teach us that the value of great stadiums as serving general recreational purposes has not yet been quite established. The author of the project believes that numerous playing fields are to be preferred from the standpoint of the public. Care should be taken to conserve the turf by closing alternately some of these fields to the public.

Europe Looks Ahead

In the years since the World War the growth of European cities has been, with a few exceptions, slow, and in many cases the census shows stationary or even decreasing figures. Despite this fact, we can notice that many city governments, especially in central Europe, are manifesting a remarkable foresight by seeking to plan the development of their communities in such a way as not only to promote the health, the comfort and the general welfare of the present population, but to provide also, as far as possible, for a future perhaps much larger number of inhabitants.

Dr. Rappaport's report appears to be one of the most intelligent of the regional plans by which European cities are helping to meet the problems and opportunities of the new day.

Massachusetts Looks Back 300 Years

TWENTY - ONE open-air historic pageants are scheduled for presentation in Massachusetts this summer as a part of the Massachusetts Bay Tercentenary celebration, which began officially with the beginning of 1930, but which is expected to attract large crowds of visitors from all over the country from June 1.

It is said by those in charge of the celebration as a whole that more historic pageantry will be witnessed in Massachusetts during the outdoor months this year than during any previous year in any state in the country. And besides the community pageants there will be a number of events which will portray significant incidents on the identical spots where they occurred, many of them with the original "properties."

Among cities in which pageants are now in preparation are Dorchester, Newton, Medford, Cambridge, Watertown, Pittsfield, Northfield, Springfield, Nantucket, Plymouth, Westboro, Lowell, Waltham, Haverhill, Newburyport, Billerica, Holyoke, Quincy, Revere, Salem, Boston.

Being 300 years old in its own right, the city of Cambridge (originally Newtowne) is devising a special tercentenary of its own, with a pageant, the first presentation of which will take place in the Harvard Stadium on June 25, when an audience of over 25,000 is expected. A budget of $50,000 has been provided. Official exchanges of visits between this city, and its educational institutions, and Cambridge, England, and Cambridge University, are planned.

The Massachusetts Bay Tercentenary, Inc., is an organization chartered for "promotion and conduct of an appropriate and beneficial commemoration, to maintain and promote continued recognition of the contributions of 300 years from Massachusetts and New England to national welfare." Its headquarters is at 22 Beacon Street, Boston, from which complete details of local celebrations may be obtained.

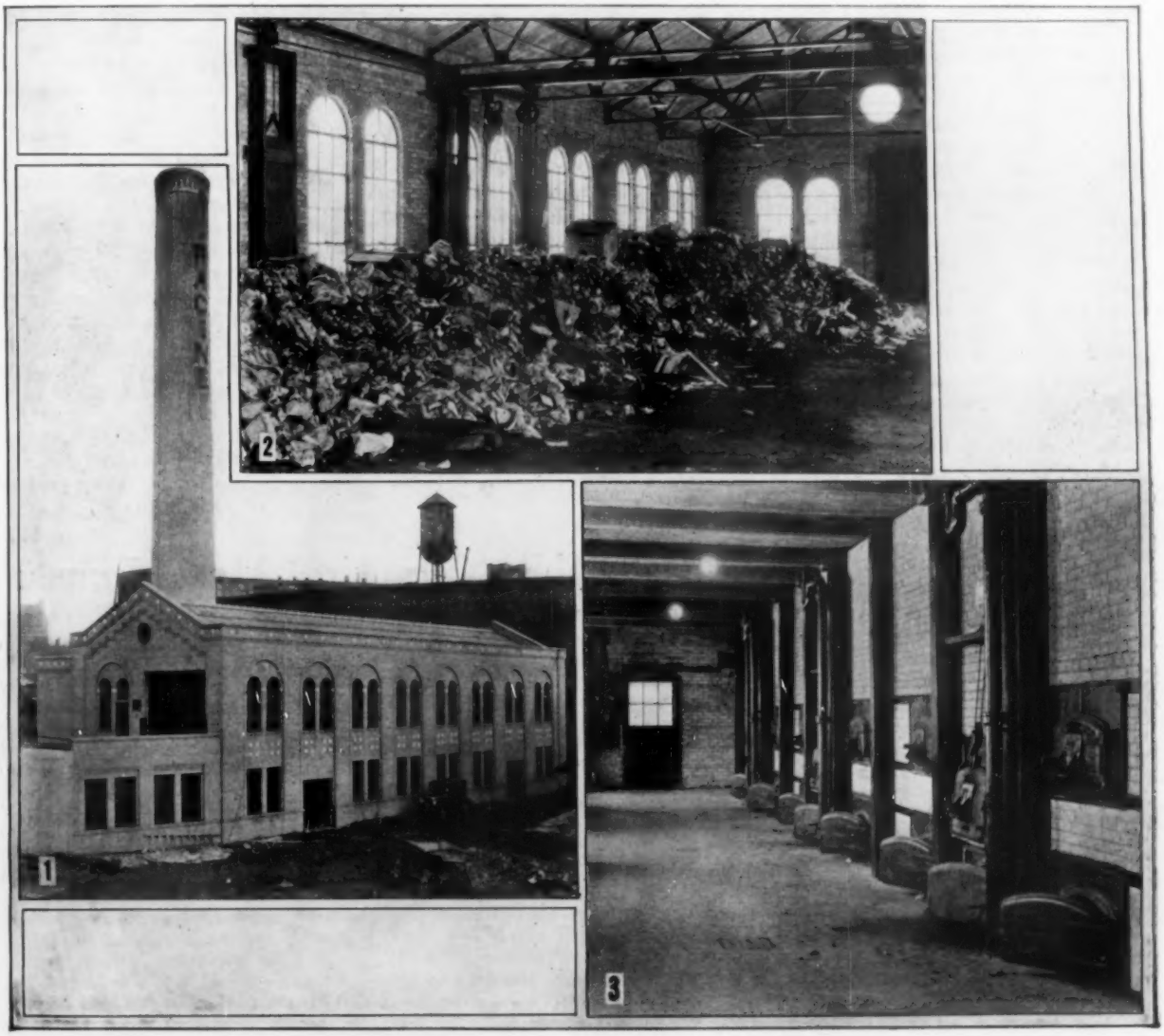
Municipal Refuse Incinerator 250 Feet from City Hall Site

By M. C. GEAREN
PLANT SUPERINTENDENT,
RACINE, WIS.

RACINE'S new $98,800 incinerator for the disposal of garbage and rubbish was given its final test of acceptance on January 15, 1930, with interested city officials from fourteen different communities present to witness what will probably be the most severe working conditions to which the plant will ever be subjected.

Unique is the word which best describes the location of this new plant, for it is situated about 250 feet from the site of the new $500,000 City Hall to be constructed this year. Situated between Sixth and Washington Streets at the east end of the viaduct over the Chicago, Milwaukee, St. Paul & Pacific Railroad, it has a location centralized to make collection costs a minimum, and it is the first unit of the new group of municipal buildings. The new City Hall is to be directly to the east, and the proposed Public Works Building, to be erected within a few years, will lie directly to the west, thus grouping all the branches of the municipal government in a centralized unit.

Racine has learned a lesson which many progressive cities will eventually learn, but not until they have spent much money in so doing. As collection costs are usually about 66 to 75 per cent of the cost of garbage disposal, it behooves the city to keep these costs as low as possible by keeping the incinerator in a central location, within easy



THE NEW RACINE, WIS., MUNICIPAL REFUSE INCINERATOR

1. The front of the incinerator, with the entrance on the north end shown at the left. The new City Hall site is directly back of the stack. 2. Garbage stored before the test. The charging manholes are seen in the foreground. A city ordinance requires that all garbage must be wrapped. 3. A view of the furnaces

reach of all the various collection routes in the city.

The New 120-Ton Plant

Having had two different types of incinerators within the past ten years, both of which proved inadequate and were finally abandoned, the city made a very thorough study before purchasing its third plant.

The new Pittsburgh-Des Moines incinerator is a three-unit furnace designed to consume 120 tons of garbage and rubbish in 24 hours' burning, with provision for two additional units to be constructed at some later date when the demand requires, which will bring the ultimate capacity of the plant to 200 tons.

The building proper is of brick construction, with a light-grey brick interior, to match as closely as possible the limestone exterior of the new City Hall. Narrow panel curved arch windows and the green cement-tile roof give a very pleasing appearance to the structure, which will not detract from the architectural beauty of the City Hall when it is completed. The floors are of reinforced concrete construction, sloped to drain, with steel trusses supporting the tile roof. The furnaces themselves are so constructed that they form a separate unit from the building, designed thus to eliminate any effects of expansion and contraction on the building housing them. A locker-room, toilet facilities, and a shower-bath are provided for use of the plant employees, with water and sewer connections available to keep the plant in as sanitary a condition as desired. The superintendent's office is equipped with steel filing cabinet, desk and chairs, arranged for efficient work. The coal storage room is conveniently placed directly under the scale for weighing incoming loaded trucks, the scale being located just outside the door of the charging floor at the north end of the building. There is a small boiler on the stoking and operating floor of the plant for heating the locker-room and superintendent's office. Hot water for the showers is secured by means of a coil placed in the combustion chamber while a motor-driven blower on the charging floor furnishes fresh air under pressure for use in the furnaces, necessary at times when exceedingly wet garbage is being burned.

The Acceptance Test

Garbage was stored for two days, which, combined with that collected on the day of burning, furnished enough for a thorough test of the plant. The weather was severe for such a test, as it was rather cold, the tail-end of a blizzard that had visited the city during the night not having completely blown out until the major portion of the test of the incinerator had been completed.

Fires were started in all three furnaces at 8 A. M., and the actual test started at 8:15. The two days previous to the test, 41.7 tons of garbage had been collected, all of this being stored on the charging floor of the plant. In addition to this amount, 20.85 tons was collected during the day, and this was stored or discharged directly into one of the three furnaces. All garbage was weighed at the entrance to the incinerator, where the scale is located, and was discharged into the furnace at a rate varying between 6 and 7 tons per hour, making a total of 62.55 tons of garbage consumed.

Furnaces 2 and 3 were closed down at 3 P. M., but No. 1 continued to operate until 5:30 P. M., the official end of the test. The actual burning time in furnaces 2 and 3 was 6¼ hours each, and in furnace No. 1 was 9¼ hours, making a total time of burning for all three furnaces of approximately 22¾ hours. These figures give an approximate rate of burning of 2.7 tons per hour per unit, or 194 tons in 24 hours for the entire plant, or about 160 per cent of the rated 120-ton capacity.

E. J. Tully, Engineer of the Wisconsin State Board of Health, was present throughout the day, taking data which were later compiled in a report for the city of Racine. Most of the figures mentioned in this article are taken from this report.

Coal was used for starting the fires, and a little was added from time to time during the day, as the amount of combustible material was not sufficient to keep the furnaces operating as they should at a high temperature. In all, 3,600 pounds of coal were consumed for the day, amounting to approximately 57.5 pounds of coal for each ton of garbage destroyed.

Forced draft was used intermittently through the day, the blower consuming a total of 4 kilowatts of electricity. Temperature readings were taken about every five minutes during the test by means of a Taylor pyrometer. These readings were taken in the burning chamber, in the combustion chamber, and in the manifold flues at a point about 40 feet from the chimney.

Samples of the garbage were tested by both the State Board of Health and the city of Racine. The former test ran an average moisture content of 68 per cent in the garbage, and the latter tested about 69 per cent. The specifications provided a guarantee of burning garbage with a moisture content of 35 per cent or more by weight, without the use of additional fuel of a combustible nature. The moisture content ran about 18 per cent over that called for in the specifications, and the combustible material about 20 per cent less, which accounts for the amount of fuel used during the day.

When the furnaces were cleaned the following day, the amount of ash for the entire day's burning in the three furnaces was weighed and found to be 741 pounds, or about 0.6 per cent of the amount of original materials dumped into the furnaces.

Quoting from the report of the State Board of Health: "Throughout the day observations were made as to the so-called color of the smoke discharged from the chimney. No dark smoke was noticed at any time; in fact, the so-called smoke was light-gray with an index less than one. No offensive odors were noticed at or in the vicinity of the plant at any time." (The index referred to in this paragraph is Chart No. 1 of Ringleman's smoke scale, as supplied by the U. S. Geological Survey.)

Philadelphia's Municipal Music Bureau

THE Bureau of Music, Department of Welfare, Philadelphia, is a unit of that city's municipal government, and is unique as to organization and functions. Its first year's activities conducted under leadership of Mrs. Clara Barnes Abbott, Chief, show multitudinous points of contact between the Bureau and other public service agencies, and with the public at large.

Its work is organized chiefly under the heads of: Educational Work; Music in Welfare; Community Music; and Public Celebrations. As one feature of educational work, all under specialists, the Bureau organized an Amateur Symphony Orchestra of 65 pieces, made up of people of all ages. It organized and conducted city-wide sight-singing classes comprising 500 voices. These singers participated in carol and festival singing at Christmas time. It conducted a teacher's institute where playground and camp directors were trained to make and play primitive instruments. It organized and trained a Municipal Jubilee Choir of exceptional Negro voices, specialized in singing spirituals. It trained leaders for Rhythm Orchestras for all the city's recreation centers.

Dr. Willem van de Wall, a national authority on musical therapy, was loaned from the State Department of Welfare at Harrisburg for part-time service with the Bureau in training representatives of hospitals and other institutions in the use of music in welfare problems. The Bureau also provided musical programs to hospitals and other institutions on appropriate occasions, and supplied trained leadership and instruments for musical instruction for crippled children in institutions.

It purchased a radio-equipped Municipal Musical Car, equipped with motion picture screen as well as microphone, and sent it throughout the city with programs.

The Bureau also provided public music programs on national holidays.

A Knowledge of Flow Tests Is Helpful

By HUBERT B. SMITH, C.E.

THE important function of any water distribution system is to furnish at all times an adequate supply at an adequate pressure. Although the distribution mains comprise the major part of a water-works system, many times they are not scrutinized with the same care as the filter plant, pumps and other appurtenances, unless their condition is the apparent cause of inadequate supply and pressure.

While it may not be considered of vital importance for the water-works engineer to be an expert on the subject, he will find it of great advantage to be able to run a waterflow and pressure investigation himself, particularly if he finds it necessary to solve some of the problems outlined below.

Conditions Change, Making Distribution System Inadequate

A system whose original design was considered ideal may, on account of shifting centers of population, industries, etc., after a decade prove inadequate. Data obtained through flow and pressure investigations of maximum rate of consumption, fire demand, etc., for the entire city, as well as any section of it, will in many cases permit the engineer to anticipate or at least keep abreast of the demand, thereby providing uniformly excellent service at all points in the system.

In many communities a policy has been established whereby outside services are called in, every year or two, to make a complete check or water-waste survey of the system. The data and information obtained should be as valuable and necessary to the water-works engineer as the usual accepted inventories of stock taken by the manufacturer. Included in the records should be the data obtained by the engineer himself during the intervals between the water-waste surveys, thus providing a complete control of the distribution system at all times.

Equipment Needed for an Individual Survey

In order to carry on an investigation, the engineer should have certain pieces of equipment. There should be provided a suitable meter, pressure gages, and possibly leak-locating devices. The best type of meter for this purpose is a pitot tube with either an indicating manometer or a sensitive instrument to record the rate of flow on a chart. Sometimes this recording instrument is equipped with a pressure element to provide simultaneous readings of both velocity and pressure.

The pitot tube and manometer or recorder is particularly adapted for the purpose, because:

1. It is accurate over a wide range of flow.

2. It is flexible in its application. The same instrument can be used in any size main, and for a number of different purposes.

3. It is portable and rugged, and can be quickly and easily put into service.

4. It provides either an indication or, in the case of the recorder, a graphic record from which an intelligent study of the flow and conditions can be made.

5. With the recorder, an observer is not required to be continually stationed at the meter, inasmuch as it gives a continuous record.

The uses of the pitot tube and manometer or recorder are many:

1. It can be used to meter the discharge from a pump to determine the slip or pump efficiency.

2. It can similarly be used to check large commercial meters in service without interruption or interfering with the service given the consumer, and without the necessity of removing the meter.

3. It can be used to ascertain the flow conditions in a main where a permanent meter installation is proposed, so as to be able to specify intelligently the range of flow required for the permanent meter.

4. The flow and loss of head in a pipe line can be simultaneously measured to determine the necessity of and data for designing pipe lines.

5. Any part of a distribution system may be similarly surveyed for reliable data upon which to place extensions and reinforce the system; such data afford substantial and valuable evidence in rate cases.

6. For determining leakage and waste and locating them it is especially adaptable.

The type of pitot recorder illustrated is capable of measuring velocities from ½-foot up to 11 feet per second. Its general design permits easy handling in the field, and the recorder can be moved from place to place. There is furnished with each recorder a manometer testing outfit, whereby the instrument may be checked at any time by the placing of water columns of fixed values corresponding to various pipe velocities. By reading the calibration scale, these values can be checked from 1 up to 6 feet per second.

Analysis of Conditions in a Typical City

We will now take a typical city and outline briefly the problems which present themselves to the water-works engineer.

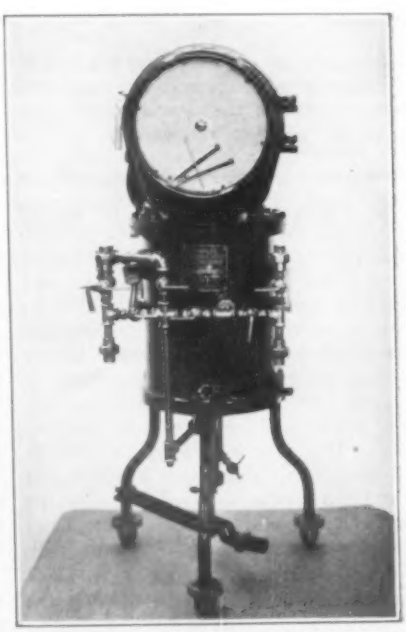
The diagram shows the distribution system of a community of about 15,000 population. The supply comes down from mountain streams and is collected in an impounding reservoir. From the reservoir it flows by gravity through a 12-inch main about 5 miles long, elevation at intake about 1,200 feet above point A, where a venturi meter is located. This meter indicates, records and totalizes the flow into the city and affords a daily history of the amount of consumption, the period and duration of peak loads, minimum consumption, etc.

There is installed near the venturi meter a manually operated pressure-reducing valve. This valve is set so that a pressure gage, installed at the City Hall, registers about 40 pounds during the day.

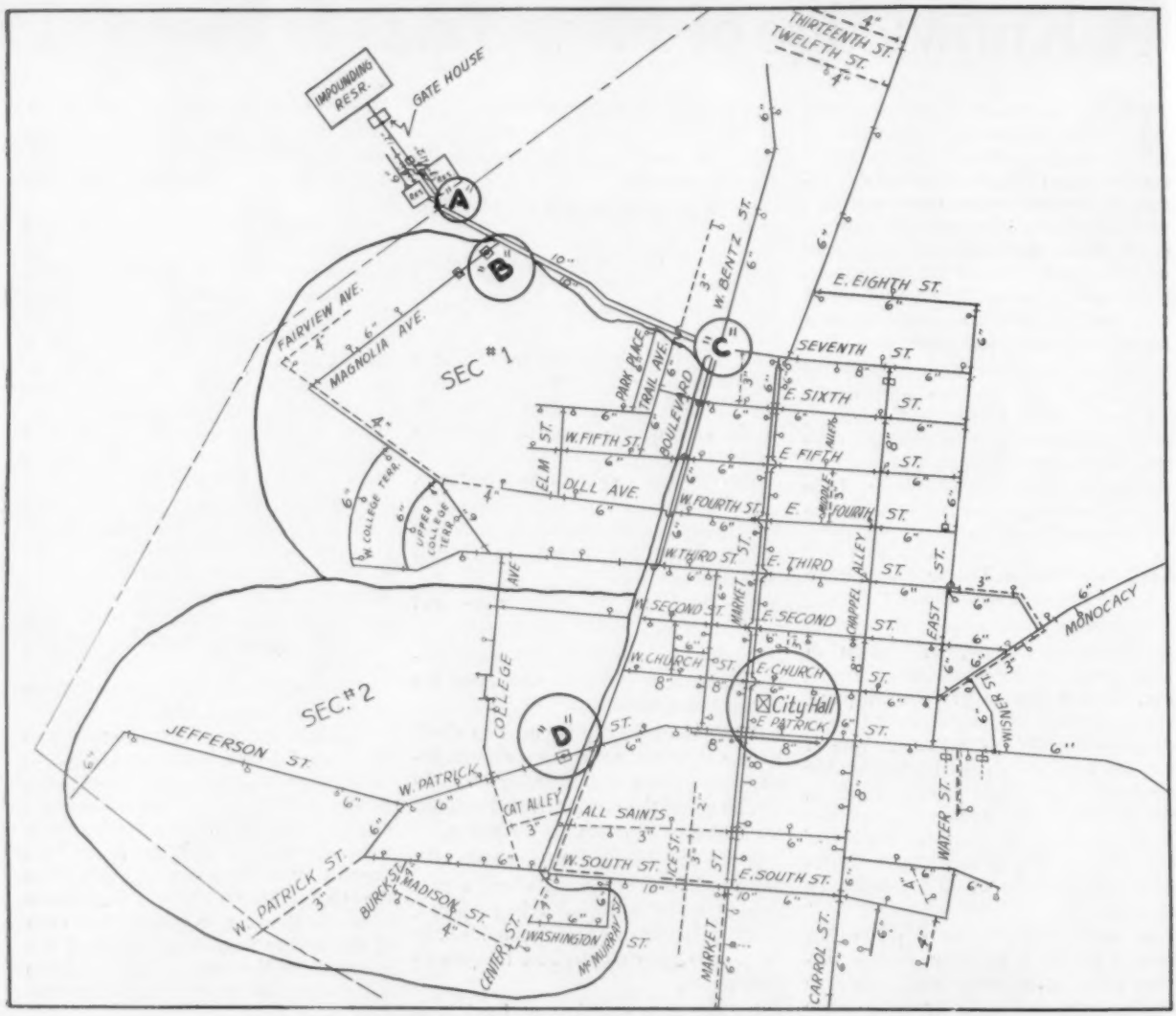
Chlorine is introduced into the supply at the gate house outside the reservoir.

The line between the reservoir and the venturi meter is inspected monthly, and leakage is detected by water coming to the surface, except where the main crosses two marshes and a small stream.

Serious water famines have been averted by quick action at times when the venturi meter showed inadequate flow into the city, indicating that most of the supply was being dissipated upstream from the meter. This condition was due to the fact that while the run-



A PORTABLE RECORDING PITOT TUBE FOR MAKING SURVEYS OF A DISTRIBUTION SYSTEM



MAP OF THE HYPOTHETICAL DISTRIBUTION SYSTEM DISCUSSED IN THE TEXT

off into the impounding reservoir was at all times ample to provide for maximum demand within the city, it would not take care of excessive leakage.

Preparation for Survey of Supply Line

It was found advisable to divide the five miles of 12-inch pipe into stations, and placing 1-inch corporation cocks at such points. By introducing a pitot tube through the corporation cock at the intake, the quantity of water passing this point was definitely determined. By the use of another pitot tube introduced at any of the intermediate stations, any discrepancy in the amount of flow between the reservoir and the station in question was immediately detected, and the leakage area thus isolated. By the use of sounding instruments the point of leakage was determined and corrected.

The fact that chlorine was introduced at the gate house, and that dosage was based on actual rate of consumption, as shown by the venturi meter, made it desirable to be able to check the amount of water passing the intake in order to sterilize the entire supply as prescribed by the Board of Health. This may be considered an additional advantage of placing a corporation cock at the intake for determining the flow at any time desired.

Another Problem

The second problem that had to be considered was between points A and C. Here two 10-inch mains, about 2,500 feet long, divided the entire flow to the city. The engineer found it necessary to determine whether each was carrying its share of the load. The method adopted was to make two taps on each line at points A and C. It was then necessary to isolate these mains by shutting off any cross-connections between these points.

By introducing pitot tubes into the mains through corporation cocks at A and C, the quantity flowing past these points was determined. By knowing in addition the pressure coincident with velocity determination, all of which was obtained with pressure gages, the friction characteristics of the respective mains were also determined. It was found that, because of excessive tuberculation, their carrying capacities had been greatly impaired; also, valves that were supposedly open had been left partly or entirely closed. This in reality covered the actual work done; however, as we proceed to analyze the system, it becomes apparent that it is possible to make pressure and flow investigation almost anywhere in the distribution system without causing service interruptions or structural changes.

Survey of the Gridiron Section

We may then proceed to divide the entire system into districts (see sections 1 and 2), selection of which is purely arbitrary.

The gaging point is established on some main of a small size, say 6-inch, the governing factor being that the size of the main be sufficient to supply the

entire section in question for a period of from 24 to 48 hours (see point B). Periodic measurements are taken, say, once a year, and if the city is metered, the flow is checked against the total amount accounted for on the individual meters within the section, or based on the estimated consumption per capita, if not measured. Such gaging points, through street connections, are made permanent and readily available in valve-box enclosures.

By covering the entire city in this manner, these records can be observed and compared from year to year, thus serving as a history of the pipe efficiencies and carrying capacities.

Procedure

The work usually starts at the outskirts of the city. With a previous record of the total water flow in each district, together with the population, the men determine whether there is an increase or a decrease in consumption, by measuring the flow at various gaging points. If an abnormal increase is found, the area is then subdivided and brought down block by block until the trouble is located. The entire city is covered this way once a year.

No attempt has been made to go into great detail and cover every step required in the making of flow or pressure studies. In all probability, many different kinds of problems of this nature present themselves to the water-works engineer, but it is believed that if periodical water flow and pressure investigations are made, and these are supported with a continual check by the engineer, a complete control of the distribution system can be maintained.

Summary

There are several advantages not heretofore mentioned which would accrue to practically every water plant that makes a practice of conducting periodical water waste surveys:

1. Additional capital expenditures for pumping-station enlargements, for increased filter plant capacity, and for larger mains are often postponed for several years by reason of locating and repairing leaks in the distribution system, thus conserving the water and enabling the plant to utilize all the water-supply for useful purposes rather than permitting a considerable percentage of it to be wasted. The financial advantage to any water plant under such circumstances is very substantial.

2. Even though the plant has the advantage of a large water-supply, it is beneficial to the plant in that all waste detected and corrected reduces pumping and filtration costs.

3. Many water companies have been penalized by public service commissions in rate cases where it was found that the unaccounted-for water was excessive. In such cases commissions invariably reduce the allowable operating expenses to a sum equal to that which would prevail in a plant economically operated. Here again, a water flow and pressure survey would eliminate the possibility of the plant's being charged with extravagance in its operating costs, and in the event of a rate case the plant engineer who knows and can prove that his unaccounted-for water is at a minimum is in an extremely advantageous position when presenting his case to the commission.

4. There is a genuine satisfaction which comes to an engineer as a result of doing a thing well and knowing all about his plant. A regular check-up of the distribution system will put every water-works engineer that follows this course in a position to know all about his plant at any time he is called upon for information. This is not only helpful to the plant in a financial way, as previously stated, but, in addition, it places the water-works engineer in a most desirable position before the owners of his plant, who cannot fail to recognize the ability and foresight displayed by the engineer.

ACKNOWLEDGMENT.—From a paper presented before the New England Water Works Association.

Reforestation Project of a City's Schools

By GEORGE A. PERSELL,
ASSISTANT SUPERINTENDENT OF SCHOOLS, JAMESTOWN, N. Y.

AWAY back in 1913 a group of nature lovers in the city of Jamestown, N.Y., learned with deep regret that the only considerable tract of woodland in the vicinity of the city was about to be cut down. Many of these lovers of the out-of-doors had played in this piece of woodland when they were children, and they could not bear to think that the children of the future would be deprived of the pleasures which they had enjoyed. So they began to talk, and as a result of their talking conferences were called, which formed a temporary organization to rescue a portion of this woodland and preserve it for future generations.

By this time the work of cutting timber had begun and it was necessary to move rapidly if the forest was to be saved. The only money available was a gift of $100 from the 1913 senior class of the high school; but a committee of interested citizens in the course of a few days induced some 40 business men to sign a demand note for $1,000, which was accepted by one of the banks. With this working capital the temporary organization purchased the timber rights and secured a legal option upon the land.

Money to meet the demand note was obtained largely through a canvass of the citizens, conducted by teachers and pupils of the public schools. A few generous gifts were received, but the greater part was made up of small amounts contributed by interested people.

On the evening before Arbor Day, 1914, a permanent organization known as the School Park Association was perfected and the work of paying for the land was begun. The various schools of the city gladly assumed the burden of raising the necessary funds. The total cost of this 52 acres of woodland was $8,250. This sum was made up of small contributions from citizens, gifts from school children ranging from one cent to a dollar or more, and money raised by concerts and other forms of entertainment. When the tract was entirely free from debt, it was deeded to the Board of Education to be held in trust for the children of the city of Jamestown.

The trees in the school park consisted of maple, beech, cherry, a few chestnuts and an occasional pine and hemlock, besides small shrubs of different kinds. The Association has set out several thousand pine and spruce trees in some of the more open areas of the park, and many of these are growing nicely.

More recently a more comprehensive reforestation project has been sponsored by the schools of Jamestown, including a 150-acre farm, about five miles from the city, purchased in 1927, and one of 216 acres, adjacent to the first, two years later. Two plantings have been made on the first tract, one of 10,000 European larch seedlings and 10,000 white pine seedlings in the spring of 1928, and one of 10,000 red pine and 10,000 Norway spruce in the following spring. The first seedlings used were of two years' growth; the second planting was with three-year seedlings, which gave better results.

As it was not legal for the Board of Education to assume title to property lying outside the limits of the school district, a corporation was organized, under the name of the Jamestown School Forests, Inc., which took the land and is now managing it.

The money for financing this project is being raised by the schools, which have agreed to pay their quotas on the following basis: for the kindergarten to the sixth grade inclusive, five cents per pupil, per year; for all grades above the sixth, ten cents per pupil. Pupils are not asked to contribute to these quotas. The schools assume the obligation and raise the money as a school project. Up to the present time no school has failed to pay its quota in full. Several of the Parent-Teacher Associations of the city have contributed generously toward the work, and for the past two years the senior class of the high school has left one hundred dollars as a parting gift to help carry on this work.

Each spring 20,000 trees will be set out in the school forest until the entire tract is reforested. The work is done by school men who volunteer for the service without compensation, and by high school boys who care to work; the latter are paid about 30 cents an hour.

The schools are justly proud of their reforestation project, and some of those interested in the plan are hoping to increase the holdings of the corporation to 500 acres.

A Pageant of the Old Times Creates a New Community Spirit

OLD-TIME TALLY-HO COACHES FIGURED IN HONESDALE PAGEANT AND PARADE

AN exceptionally fine demonstration of the manner in which community talent, community enthusiasm, and community energy may be organized for the re-creation of old, half-forgotten occurrences, and the reanimation of the spirit of a splendid past, was given in Honesdale, Pa., recently in the presentation of the local historic pageant, "The Loom of the Years."

This pageant was written, directed, produced, and costumed, and its music provided by members of the community. More than 1,100 took active part in the preparation and presentation of the pageant—half of the officially recorded population of Honesdale; and many of the participants were descendants of the historic characters portrayed. The scene of the production, Stourbridge Field, was, just one hundred years earlier to the day, a part of the setting for the momentous trial trip of the Stourbridge Lion, the first steam locomotive to turn a wheel in America. The events of that occasion were conspicuously featured in the centennial celebration with other historic episodes, including the early settlements, the visit of Washington Irving, and some of the stirring scenes preceding and during the Civil War.

Rev. William K. Newton, minister of the First Presbyterian Church, in collaboration with Miss Marie Freund, who was dramatic director, wrote the pageant, and the minister also played the principal symbolic role of "The Weaver Who Weaves the Web of the Years." The poetic and allegorical framework into which the historical episodes were fitted was elaborated by other symbolic figures, of Fortitude, Courage, Industry, Friendship, Faith, Service, Peace, Good Will, and Progress. In the epilogue—and standing out conspicuously against the background of the years—one hundred girls, grouped by decades—each symbolic figure came, holding high the torch of Civilization. Good Will, Service and Progress were conspicuous among them.

Presentation Makes Strong Appeal

The great sincerity and beauty which distinguished the production were immediate in their appeal to the vast audiences present on centennial night and at the two performances given on following evenings; and were reflected in the newspaper accounts of the occasion. To quote from one editorial:

"As the various episodes passed in review, we were proud to be the heirs of such fortitude and courage, such industry and progress, but we were very humble in the presence of it all as we realized the important trust which the hundred years have given into our charge. . . .

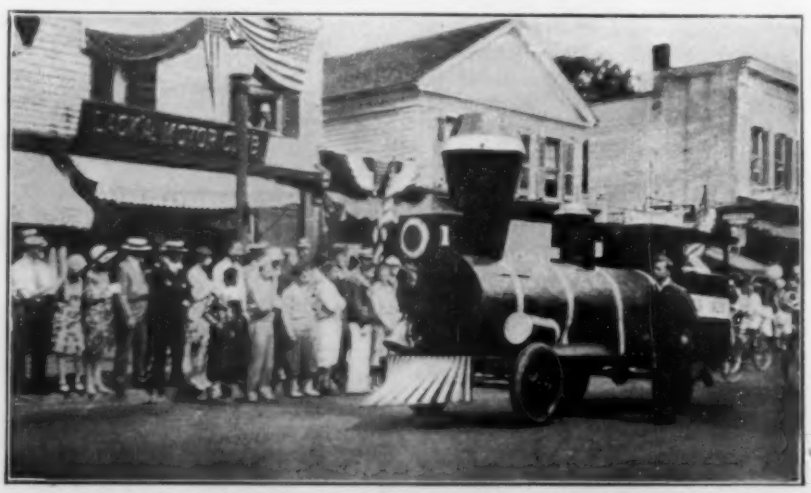
"Here in the procession of the hundred years, we were reminded of two great qualities of soul without which no community, no nation, can long exist—Service and Good Will. And as these symbolic characters summoned the moving spirits of each episode, we felt that we were not only spectators, but scholars—we had come to see how a nation is built, and lo, we were taught that we, too, are builders—our fathers had laid the foundations, raised the buildings, ours the task to furnish and adorn."

The pageant was a feature of a larger centennial program, of which a historic transportation parade was another part: mounted Indians, ox-carts, covered wagons, quaint tally-ho coaches in which rode Daughters of the Revolution, and others, in splendid costumes of by-gone days; and canal barges were included in it, as were two-wheel gigs, ancient high-wheel bicycles, and old wood-burning locomotive; and, of course, automobiles of every kind and age. Airplanes circled rhythmically overhead as the parade passed.

A beautiful bronze tablet in commemoration of the Stourbridge Lion was unveiled with appropriate ceremonies.

In response to comment regarding the large amount of publicity Honesdale received because of the pageant and the other features of the celebration, one of the citizens said:

"The production was most wonderful as a civic enterprise, for never before has the town worked together."



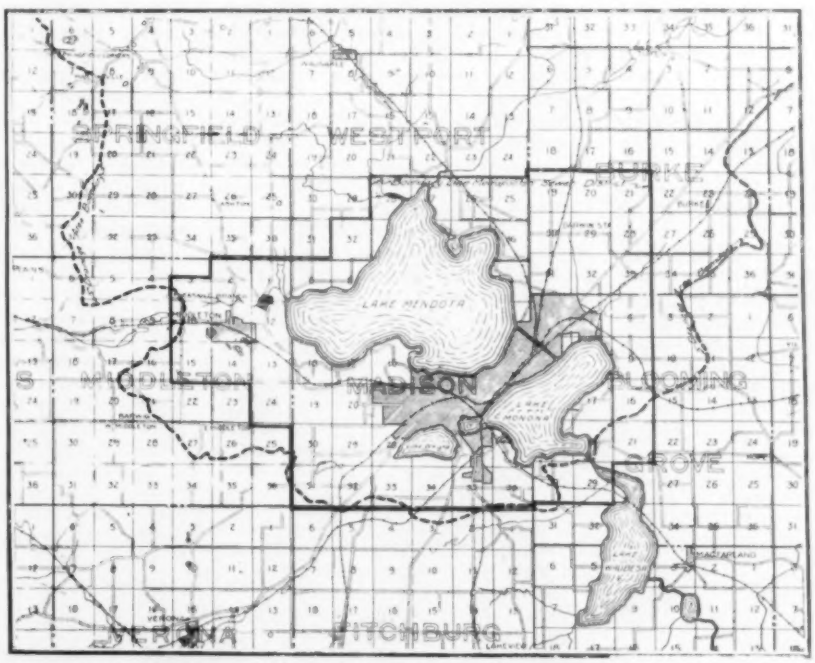
A WOOD-BURNING LOCOMOTIVE, DESCENDANT OF THE STOURBRIDGE LION

A New Wisconsin Sewage District

By E. E. PARKER
CITY ENGINEER, MADISON, WIS.

A FEW months ago the village of Middleton, located seven miles from Madison, Wis., announced that it would construct a sewage disposal plant near the western shore of Lake Mendota. The announcement alarmed the citizens of Madison, which is on the southeast shore of the lake, and immediate steps were taken to prevent an act that would prove folly for both communities.

The necessity for the creation of a sewage district is based on the fact that building trends in Madison point to Middleton as a future populous and important suburban city. Middleton is now installing a system of sewers and has let a contract for the construction of a sewage disposal plant, the effluent from which would discharge into the west end of Lake Mendota. This lake will be the future water-supply, not only of Madison, but of all the communities adjacent to the lake, and this alone emphasizes the necessity for keeping the lake clean. Drinking water can be made out of sewage, but the very thought is repulsive to most people.



MAP OF MADISON, WIS., SHOWING LIMITS OF NEW METROPOLITAN SEWER DISTRICT

The lake shores of Mendota are a highly valuable asset to Middleton, and the village future may be seriously damaged by permitting a sewage disposal plant to be erected on them. A disposal plant is not a good advertisement for a locality desiring to attract home builders.

The creation of the metropolitan district will stimulate development of the area between Madison and Middleton. Middleton can enter the metropolitan district at a considerable less cost than that involved in setting up an independent plant, and its saving in operation by the metropolitan district plan would be so substantial that over a period of years it would amount to a large sum of money.

Sewage Pumped to Existing Plant in Madison

The metropolitan system will provide for the pumpage of all sewage from communities in the vicinity of Madison to the present Madison disposal plants, which will be purchased by the district. The sewage will be more efficiently handled and inspected at Madison, and those securing the service will pay their proportionate share of the total cost.

The settlements that have voiced their willingness to be included in the metropolitan system are: Middleton, Shorewood Hills, Glen Oak Hills, Nakoma, Westmoreland, Gallegher Plats, Morning Side Heights, and other territories adjoining Lakes Mendota and Monona.

Financing

The total assessed valuation of the entire district is $160,000,000, of which Madison's assessed valuation is $150,000,000. This causes Madison to pay more than 93 per cent of the total cost. The total investment in the whole system in 15 years will be approximately $6,000,000. The present value of the Madison plant which the district will take over is $3,500,000.

The entire district comprises a land area of some 56½ square miles and a total of 77½ square miles, including Lakes Mendota, Wingra, and Monona, which surround the city. The district, as tentatively bounded, includes the city of Madison, comprising 7½ square miles of land area with its jurisdiction over 21 square miles of lakes, 9½ square miles in the town of Middleton, 9 square miles in the town of Westport, 9 square miles in the town of Burke, and 14 square miles in the town of Blooming Grove. The only portion of the district proposed to be developed immediately, however, is that which lies between Madison and Middleton.

Petitions signed by five per cent of the population involved who voted in the last election for governor are sufficient to initiate the project, and if the County Court is convinced of the necessity for such a system, it will appoint a commission of three members to administer the system. The cost of the building of the sewage district is taken care of through taxes on the basis of assessed valuation of the property in the district. This tax is certified to the different governmental units in the district and they collect the taxes and turn over the proceeds to the commissioners.

Connecting the Middleton System

The immediate problem that confronts the officials of the two communities is the connection of the Middleton system with the Madison system. This will be done by constructing a gravity sewer from the end of the Middleton outfall to a pumping-station located at Merrill Springs. The pumping-station at Merrill Springs will elevate the sewage, through a force main, up the Merrill Springs valley to a level from which it will flow into the Madison system by gravity. The gravity sewer will connect with the present west end intercepting sewer at the Madison city limits.

The engineering phases of the problem are not expected to present much difficulty. The addition of the sewage from the outlying systems will not add a serious burden to the Madison disposal, through which upward of 7,000,000 gallons of sewage already pass daily.

The connection between Middleton and Madison will cost about $250,000, and that will be the only immediate cost involved. The cost to Middleton of operating its own plant (estimated cost of building is $30,000) would be $3,000 annually, while its proportion of the operation costs for sewage disposal under the metropolitan district would only be $750 per year. Middleton's valuation is $1,400,000, or less than 1 per cent of the total assessed valuation of the whole district.

The city of Madison will be the greatest single unit served by the district and thus will bear the major portion of the cost of construction and operation. The proportionate expense of the initial extension would be about 1 per cent for the village of Middleton, or $2,500.

Shall the Plan Grow Up with the Town or the Town Grow Up to Comprehensive Plan?

To the Editor of THE AMERICAN CITY:

When Arthur Hawthorne Carhart writes*, "Let the plan grow up with the town," I seriously doubt if he intends all that that might imply. The planning for immediate needs, with no provision for future expansion or for future coordination of parts, is exactly the situation usually found existing before the consultant is called in. I do not think that he intends the consultant to continue that state of affairs.

The purpose of the city plan is to control the development and the interrelation of parts in the growth of the city. And the major function of the consultant is to anticipate the demands of future expansion and future needs. The value of his services to the city will depend in large measure on the correctness of his anticipation.

What gives rise to the controversy is the fact that Mr. Carhart does not qualify the ambiguous title. What I am sure he intends to say is: "Let the plan (on paper) grow up with (the needs of) the town." For assuredly a town planner who would avoid a higgledy-piggledy form of development, must have a basic understanding of all the possible ramifications which the ultimate plan will pursue.

The distinguishable difference, then, lies in the fact that, under what might be termed the unorthodox method of operation, the *detailed* aspects of the comprehensive plan are paid for as needed. The debatable point is whether this is as desirable a feature as it would appear to be at first thought. Under both methods, the city pays for an analysis of existing conditions. Likewise, it buys the conception of a basic plan; but this plan exists *in toto*, and without detail, in the mind of the consultant. In practice, the two methods diverge at this point.

Under the orthodox system, the comprehensive plan is developed in detail, and the interrelation of parts is presented in a graphic and tangible form. It is thus made available for all those who desire to comprehend the development. And it provides a goal in attainment toward which the city may work to affect a realization.

With the *un*orthodox system, the basic plan is never revealed. It can *not* be revealed except by a series of substantive plans showing interrelated development; and under this system, these parts are made evident only as needed. The course of the plan in this case can only be traced in its effect on the city—which means that its adaptability to future expansion can never be questioned—that its suitableness for possible future needs can never be challenged or criticized except in the final assembly and actual realization.

Is Extreme Flexibility Desirable in City Plan Revision?

Attention is quite often called to the inflexible nature of the orthodox scheme of development. And it is pointed out that a change in the completed plan may not be consummated without much laborious revision. As this affects compromise measures, it should act as a natural deterrent. Any *valuable* change is worth the cost of revision. It is begging the question to use the item of ease of adaptation to compromise as a point of argument in favor of the unorthodox system. To do so is to disregard causal relation.

It is readily agreed that a city must have infinite faith in the ability of its planning consultant. It must inherently believe that he is guiding the city to a more logical and organic perfection. Is it not taxing that faith when, under a system of installment buying, the comprehensive plan, although paid for, exists only in the mind of the consultant? And what, may I ask, is to happen in the event of his death?

Mr. Carhart contends that a city plan is quite often outmoded. If this is found tenable, I believe it is of minor importance. With a plan that is at all adequate, and that is carried out in a consistent manner, the result will be a unified and coherent development. And unity and coherence, after all, are the fundamental concerns and the only stable and unqualified reasons for the existence of any comprehensive scheme of development.

A more serious matter is the noticeably apathetic condition appearing in many cases soon after the adoption of a comprehensive plan. But can this condition be construed necessarily to mean a defect in that plan? There is no proof offered to show that the same apathy is not apparent under the unorthodox scheme of development. Is it not more likely that this condition is due directly to a deficiency in the attitude of the people, and that it is evidence of a lapse in enthusiasm which was never genuine?

WM. F. HATHAWAY,
Landscape Architect.

Saginaw, Mich.

* See THE AMERICAN CITY for February, 1930, pages 127-128.

The Cost of a Tree in Sheboygan

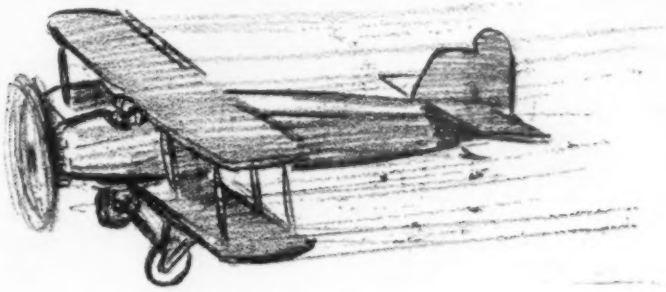
THROUGHOUT a substantial planting program which has recently been concluded in Sheboygan, Wis., records were kept which enable Park Superintendent C. O. Buenger to show not only the cost involved but also the details of expenditures in behalf of each of the 162 specimens added to the already substantial wealth of shade trees in the city's parkways and public breathing places.

The Park Board pays landowners in the surrounding country 50 cents each for carefully selected trees of 2 inches diameter or less, and $1 for larger trees. It has bought a few at $2.50. Following removal, in September, the trees are placed in trenches and left there until the ball of dirt is thoroughly frozen. They are then removed and placed in the holes prepared the preceding fall. Each tree is labeled at the time of removal, with a linen tag showing its size, future location, species, and origin; and these tags are made the basis of the tree's case history, which shows total cost, growth record, etc.

The average cost per tree from woods to city is $7.31. The planting expense brings this amount up to $21.89. To this amount is added 10 per cent "overhead," which is figured chiefly as depreciation in park department equipment and tools. The total is chargeable to the individual park or to the property owner in front of whose place trees are requested to be planted. The ultimate cost per tree is $24.07. The "value received" represents the finest available forest tree of its size and kind placed under conditions most favorable to its growth. Two tons of rich black soil is placed in each hole, and each root ball is at least 3 feet thick and of appropriate diameter to the tree size. The trees are scientifically trimmed to reduce the leaf surface at least 50 per cent, but without mutilation of branch ends or noticeable changes from the natural contours.

The *cost* of a tree can be calculated; its *value* can hardly be estimated. See THE AMERICAN CITY for January, page 143, and March, page 102.

What Impression Will Your City and Its Atmosphere Make on the Air Tourist of the Future?



Drawn for THE AMERICAN CITY *by C. D. Batchelor*

And How About Your Own Citizens of Today? Can They Obtain Fresh Air Only Above the Smoke Clouds or Outside Your City Limits?

FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Discouraging News for Criminals in Westchester County

WHITE PLAINS, N. Y.—Complete co-operation of county and municipal peace officers in thwarting the efforts of criminals in Westchester County, New York, is assured by the county-wide telephone typewriter system installed recently by the New York Telephone Co.

Thirty communities in this suburban area directly north of New York City are linked together by the network over which information about criminal activities occurring in any part of the county will be broadcast from White Plains, the county-seat. In addition to becoming a crime preventive and a means of apprehending criminals in Westchester, the new system closes effectively the "bottle-neck" through which criminals from New York City may escape. Exits from the city to the south and east for criminals using automobiles are effectively blocked by water, except for well-policed passages by tunnel, bridge and ferry. With a telephone typewriter system of their own, metropolitan police are able to block these exits a few minutes after they have been notified of crime, but streets and roads to the north heretofore have offered a greater problem.

Within a few minutes after the presence of a criminal in the county is known, county and municipal officers in the various towns will have a description of the person wanted, what direction he is taking, and any suggestions that local officers have of his possible movement.

The center of the network, which is the first interurban system of the kind in the state, is at White Plains, where two page-type sending and receiving telephone typewriters have been installed in police headquarters. Information from other points in the county will be telephoned to White Plains and broadcast over the system. Receiving instruments only, where the broadcasting will be simultaneously received, have been installed at all other points. These are the sheriff's office at White Plains, police headquarters at Mount Vernon, Yonkers, New Rochelle, New Castle, Bedford, Harrison, Mamaroneck, Greenburg, headquarters of the Westchester County Parkway Police at Bronxville, and police headquarters in the villages of Rye, Larchmount, Briarcliff, Bronxville, Scarsdale, Tarrytown, North Tarrytown, Ossining, Elmsford, Irvington-on-Hudson, Tuckahoe, Dobbs Ferry, Pleasantville, Hastings-on-Hudson, Mount Kisco, Peekskill, North Pelham, Pelham Manor, Mamaroneck and Port Chester.

The first move for the installation of the system was made during the administration of Sheriff Thomas V. Underhill, a retired New York City police inspector. It was placed in service January 25, with messages of greetings sent to various police chiefs by Sheriff Louis Ellrodt, and Herbert C. Gerlach, Chairman of the Board of Supervisors. From this time on, it has been ready during the 24 hours of the day to broadcast instantaneously information about the activities of those so foolish as to engage in criminal pursuits in Westchester.

Through the typewriter installation at the Westchester County Parkways police station at Bronxville, and the Parkways police patrol system recently installed by the telephone company, information sent over the typewriter system will be available immediately to all highway patrolmen along the Bronx River Parkway, one of the principal thoroughfares running north and south through the suburban district. Police telephones have been installed in booths in Crestwood, Hartsdale, Valhalla, and Wakefield, convenient locations on the beats of highway patrolmen. These telephones are connected to a private branch exchange in the Parkways police headquarters at Bronxville, and as messages are received on the type-

TELEPHONE TYPEWRITER SENDING-EQUIPMENT
Used in Police Headquarters, White Plains, this machine dispatches messages to 29 other communities in Westchester County

THE PAGE-TYPE RECEIVING INSTRUMENT
Police Headquarters in each of the other 29 communities is equipped with one of these

A TELEPHONE BOOTH ON THE BRONX RIVER PARKWAY

These booths contain telephones connected to the Westchester County Parkways Police Headquarters at Bronxville. Messages received by the telephone typewriter in the Parkways Headquarters may be relayed to highway patrolmen over this system

writer system they will be relayed to patrolmen. Officers on patrol are notified that there is a message awaiting them, by red signal lamps attached to the outside of the booths and operated from the headquarters switchboard.

Peace officers in the county, commenting on the new system, point out its advantages as a crime preventive as well as its usefulness in catching the criminal. The criminal picking Westchester for the scene of his operations will meet continued discouragement in the new system. Knowledge of such a system travels fast in the underworld, officers say, and potential criminals, knowing of the existence of the telephone typewriter system, will be less likely to extend their operations into this territory. With the exception of two large cities on the edge of New York City, there is no coverage for the criminal in the county, as woods and parkways are supervised carefully by county police, who now are never without knowledge of the activities of offending members of the underworld.

HOWARD W. CASLER,
New York Telephone Co.

Forward Steps That San Francisco Needs

SAN FRANCISCO, CALIF.—The Board of Supervisors, reorganized following the elections, has been given the following recommendations by Mayor James Rolph, Jr., as constituting the principal matters to be taken under consideration as soon as possible:

Immediate settlement of War Memorial dispute so work can start.

Purchase of site of Mills Field (airport).

Two new buildings at Civic Center to house courts and Police Department.

Additional facilities for yacht harbor.

Opening of streets at Civic Center and adoption of plan for façades.

Construction of garbage incinerator.

Creation of public service commission to administer city-owned utilities.

Consolidation of San Francisco and San Mateo Counties.

Immediate installation of lights on boulevards.

Gift of two fountains of architectural beauty in Civic Center in time to be opened with Hetch Hetchy water.

Erection of electric signs of "Welcome to our City" at the city limits on all major highways.

Construction of the Market Street subway for rapid transit.

Elevated rapid transit line through Bernal cut and thence to southern limits of San Mateo County.

Resubmission of the Broadway tunnel bond issue to the voters.

Establishment of new jail in Honora Sharp Park to replace Ingleside jail.

New method of procedure in purchase of lands needed for parks and other purposes.

Widening of Army Street for crosstown artery.

Widening of Illinois Street for industrial and shipping use.

Reclamation of tidelands at Hunters Point.

More playgrounds, with immediate purchase of lands needed.

Central warehouse.

Immediate sale of health bonds to provide additional hospital facilities.

JOSEPH M. CUMMING,
Executive Secretary, Down Town Association.

Approach Housing Problem in Systematic Manner

TORRANCE, CALIF.—A systematic and scientific approach to the local housing problem is being made here through the recently established Housing Bureau of the Torrance Chamber of Commerce.

In Torrance today there are approximately 5,500 industrial employees, with a total population of about 6,800, which is raised to 8,200 if East Torrance is included. In a well-rounded and developed industrial community the total population should be at least three times the number of industrial employees. Torrance, however, has hardly more population than the number of workers. It has been found that the residences of many Torrance workers are scattered all the way from Glendale and Pasadena on the north to San Pedro and eastern Long Beach on the south. Many of them live ten miles or more from their work and spend hours each day traveling back and forth.

Among the reasons why many of these people are not living in Torrance, as they should, is the lack of rental and sales homes suitable for their needs. To relieve this situation and eliminate other handicaps to the proper residential development of Torrance, the Housing Bureau is operating under a three-fold program: first, to make a complete survey of the pertinent facts relative to the fundamental situation; second, on the basis of such facts to outline a plan of campaign; and third, to initiate action in accordance with the plan formulated.

Surveys have disclosed that there are approximately 600 lots in the fully subdivided section still available for immediate improvement with homes. A map has been prepared showing the approximate value of houses on all improved lots and also of those sites not yet improved. Areas have been indicated in which plans should be made for immediate installation of public improvements in order that they may be utilized more fully for homes. As to approximately one-half of the vacant residential lots in the fully improved section of Torrance it was found that each owner holds only one lot. A further study has been carried on to determine the market value of this residential property now unimproved. The approximate number of families living in rental quarters has been determined, the financing available for the erection or purchase of new houses investigated, and the sources of contracting and architectural services open to Torrance people thoroughly canvassed.

The entire survey has indicated the types of homes needed in the city if it is to develop as it should along residential lines. The real estate brokers of Torrance have formed an association known as the Torrance Realty Board, which has been holding weekly meetings at the Chamber of Commerce to discuss ways

and means of stimulating the local housing program. In addition, the Housing Bureau has been carrying on negotiations with out-of-town builders to encourage them to come to Torrance. Plans have been developed for renters to acquire their own homes under reasonable terms, and local real-estate transactions rendered more flexible, because of the activities of the Housing Department. Thus Torrance fully understands its housing problem and, instead of permitting it to drift along unattacked, is making an intelligent and systematic attempt to solve it.

E. STANDISH PALMER,
Manager, Housing Bureau.

Landing Field and Auto Ferry Urged in Club Program

PUT-IN-BAY, OHIO.—With confidence that this historic community, the unique island setting of which, in Lake Erie, provides exceptional advantages as a summer playground, has a distinctive destiny, the Exchange Club has adopted a progressive program of community improvements that it will sponsor or assist. The present movement for a new auto ferry to the mainland is encouraged, together with efforts to increase the number of cottages and other summer homes. An improvement in the highways on the island, and a more active clean-up program, are advocated.

An airplane landing field, and air markers, constitute projects that are to be developed later on. Other enterprises for the future are the beautification of the waterfront and the establishment of a small park along the bay.

Both the Federal Government and the state of Ohio have chosen Put-in-Bay for purposes of investigation of lake life. The state has constructed a lake laboratory here and is considering its further expansion.

R. L. TODD,
Secretary, Chamber of Commerce.

Orderly Progress and Prevention of Waste Furthered

BARTLESVILLE, OKLA.—The past year has been a noteworthy one from the standpoint of civic progress in this city. A substantial amount of physical improvements have been constructed, but of still greater importance is the establishment of methods for the orderly development of the city and the safety, convenience and enjoyment of its citizens in the future.

Foremost in these accomplishments is the creation of a City Planning and Zoning Commission and Board of Adjustment, through the passage of a planning and zoning ordinance. By this means the physical development of the city can be furthered in the most intelligent, orderly and comprehensive way, with the maximum of efficiency and attractiveness in the city plan; property values will be conserved, the possibilities of harmful speculation reduced, and proposed expenditures that will not stand examination in the light of a well-considered plan will be prevented. The importance of the city's adoption of a planning and zoning procedure is emphasized by the fact that five additions were annexed to the city during the past year.

Another achievement, particularly affecting safety and the prevention of waste, was the inauguration of thoroughgoing inspection service for fire prevention, with the provision of a full-time inspector in the Fire Department who will examine buildings for defective wiring or other fire hazards, with a view to having such defects corrected so as to prevent losses that might otherwise occur. A total of four men were added to the Department during the year, and a bond issue of $20,000 for additional equipment was voted.

The physical improvements carried out included the laying of twenty blocks of concrete pavement, the building of ten blocks of sanitary sewers and the resurfacing of thirteen blocks of pavement, which last work was done by the city engineering department at a cost of approximately one-half the sum estimated by contractors.

The last-mentioned achievement furnishes an example of a definite saving in money for the city, while those mentioned in the preceding paragraphs promise future economies of indefinite amount. The inspection service established in the Fire Department provides a means of substantial savings for the community in reduced fire losses and for the Department itself in making necessary a smaller total annual outlay than might otherwise be required, as the city grows. A wise system of city planning and zoning will result in savings to the city as a whole by providing the most efficient physical plan and by enabling expenditures for improvements to be made at the proper time and in the most effective way, without being wasted in ill-advised and uncorrelated projects.

Progress of the city along the lines of recreation, general attractiveness, and personal enjoyment and improvement were not slighted, as bond issues of $75,000 for parks and $60,000 for civic center improvements were approved at the polls, and an addition of ten thousand books was made to the municipal public library. Thus the past year has seen the carrying out of a well-rounded program of worthwhile accomplishments.

M. E. MICHAELSON,
Mayor.

Multiplying Community Fire Protection by Federating Regional Fighting Facilities

GENEVA, ILL.—The Fox Valley Federation* is an inter-community agency organized to promote sound regional planning and community welfare throughout the district of Illinois commonly known as the Fox River Valley, which comprises towns immediately above and below as well as between the cities of Aurora and Elgin. Fire-fighting facilities in Aurora, Elgin, and neighboring towns have been federated through one of the most recent efforts of the Federation. In addition to increased efficiency and protection, these Fox Valley cities, towns, and villages now expect reduced insurance rates.

By using adapters and universal couplings, or even hose repair jacks in emergency, a string of hose can now be laid many times the distance formerly possible, even though the communities have different sizes and threads. Under the new system, if Elgin should need help, St. Charles will go to its aid with the knowledge that Geneva will answer St. Charles' calls. Batavia will then stand ready to answer Geneva's calls, and Aurora to answer Batavia's. If dire disaster strikes Aurora, it will work the other way, and if neighboring communities above, below, or between need help, they will get it in an orderly, organized, efficient way without leaving any place unprotected.

Auxiliary first aid and relief work was studied and the importance of reserve relief recruits and facilities was vividly shown by recalling different dual disasters. Of these, the first was so bad that everybody and everything available was used to help, and then when the second, or so-called sister disaster, happened, it grew into a major calamity because help was not at hand to gain control of it. This often accounts for a bad fire's being immediately followed by a worse one. Therefore, arrangements were planned to provide reserve protection and recall aid.

At the meeting sponsored by the Federation, following a thorough survey of equipment, each locality showed a fine feeling of friendly interest in the protection and general welfare of the whole region. The hope was repeatedly expressed that none would ever need call for help, but grateful appreciation for the agreement was unanimous.

The telephone operators are well trained and do a valuable service in handling all calls for help, but it was shown that educational work was necessary with the general public, who must be shown the serious possible consequences of tying up the telephone service with useless calls during an emergency. Every moment counts, and in cases of explosions, for example, entire systems have been paralyzed by calls for information. An instance was related of a fire department sent to a wrong address. The bells and sirens caused so many people to make telephone inquiries that it was only through use of a secret signal code that the fireman got a line through to obtain the right address. Communities having no code arrangement decided to adopt one at once.

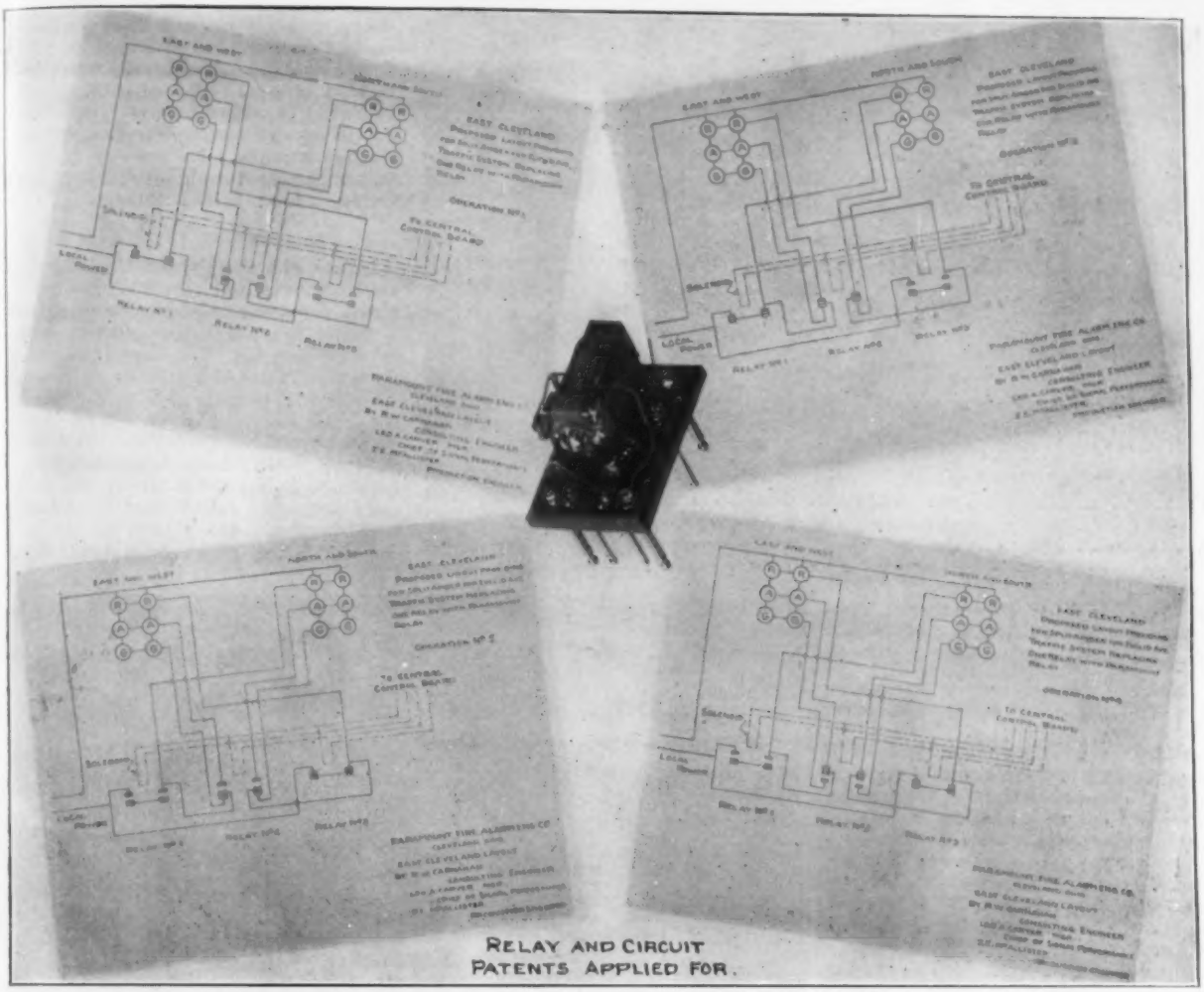
E. A. KEPLAR,
Secretary, Fox Valley Federation, Geneva, Ill.

East Cleveland Adopts Split Amber Feature for Traffic Signals

EAST CLEVELAND, OHIO.—An improved method of traffic signaling has been installed in this city which it is believed will interest other municipalities.

For over three years East Cleveland has had in operation a progressive or coordinated wave system of traffic signals on Euclid Avenue, its principal thoroughfare, controlled by a central board at the City Hall. This is one of the few systems so controlled in the country. Under this system a warning amber light is shown in all directions before each signal change.

* See THE AMERICAN CITY, March, 1929, page 150, "Fox Valley in Illinois to Regulate Its Growth Through a Regional Federation."



CIRCUIT DIAGRAMS FOR EAST CLEVELAND SPLIT AMBER TRAFFIC CONTROL, AND ONE OF THE RELAYS USED

For some time we have been of the opinion that the proper and logical way to operate this warning amber is to show it only at the end of the green light period as a warning of the change to the *moving* traffic. The traffic in the opposite direction, being stopped by the red light, needs no notice that the green is about to come on; in fact, such notice is detrimental, as it results in the impatient driver's getting his car in motion and even entering the intersection before it is clear. This improved method of showing the amber warning is known as the "split amber."

With the central board control and having cables carrying control wires to each intersection, standard practice would indicate that the split amber feature could be provided by installing the necessary cables to give one additional control wire to each intersection, where one additional relay would control the amber lights in one direction while the existing amber relay would serve the intersection street. An estimate of the cost of making this change in this manner, however, seemed excessive and the city therefore endeavored to provide this feature at less expense.

The traffic engineers of the Paramount Fire Alarm Engineering Co. worked out a circuit, using the Paramount Multiple Relay, which gives the split amber and requires the changing of only one relay at each intersection. The best plan previously offered eliminated the need for additional cable, but required the changing of all relays.

The split amber circuit consists of three relays, of which the first and third are of the single circuit type and the second as shown in the accompanying illustration. The solenoids are energized from a central control board by switches, cams, or any other method which may be used. The dotted lines represent the wires from the central control board to the three relays. The first wire, reading from left to right, is the common return from each of the three relays; the following three wires as shown at the left of the drawings furnish power for the different lights to be operated through the relays. The upper of the local power wires is the common return from all these lights. The four operations are as follows:

I

In the first operation, relay No. 1 is energized and the contacts closed. The power from the lower local power wire passes through the contacts of relay No. 1, which are closed, and from the contact of the right relay No. 1 to the red lights facing the north and south, and also to the left-hand contact leaf on relay No. 2 through the lower left-hand contact of the same relay to the green lights facing east and west.

II

In the second operation, relay No. 1 remains energized and relay No. 2 is energized, closing the circuit between the contact leaves and the upper stationary contacts, and breaking the connection between the contact leaves and the lower stationary contacts, thereby breaking the circuit to the green lights on east and west, making circuit to the amber lights on the east and west.

III

In the third operation, relays No. 1 and 2 are de-energized, No. 3 energized, closing the circuit across the contacts of this relay. The local power wire then energizes the lights on the east and west through this relay, and also energizes the right-hand contact leaf on No. 2 relay, and through the power right-hand contact of relay No. 2 energizes the green lights on north and south.

IV

In the fourth operation, relay No. 3 remains energized and relay No. 2 is energized, breaking the circuit through the lower right-hand contacts to the green lights on north and south, and energizing the amber lights facing the north and south through the upper right-hand stationary contacts. After this operation, No. 1 is repeated, and then on through each operation as before.

We also propose to provide the split amber feature at several isolated intersections having old-type controls, by incorporating the new-type relay in the circuit and making the necessary wiring changes. In the future, we propose to standardize on the split amber for all installations.

M. W. GARNETT,
City Engineer.

FIRE STATION 14, SEATTLE
The Department Drill School is located here. The drill towers shown in the background are part of a detached building

A Notable Fire Department Program and Some of Its Recent Developments

SEATTLE, WASH.—This city has an extremely low fire loss record. The figure for 1928 was 82½ cents per capita. That for 1929, was $1.97 per capita. In order to give meaning to these figures, it is necessary to compare them with the average per-capita loss figures for the nation as a whole. These were practically three times higher for the two-year period. Seattle's annual average per-capita loss for the past nine years, is, we believe, lower than can be shown for any other city of like size and area.

These facts are attributable to a number of interrelated facts, conspicuous among which is the character of men the Department is able to attract and keep in its service, the high standard of education and training given; the efficiency of the buildings and equipment; and the character of recreation facilities provided at these stations to keep the men physically fit and alert.

THE NEW HEADQUARTERS BUILDING

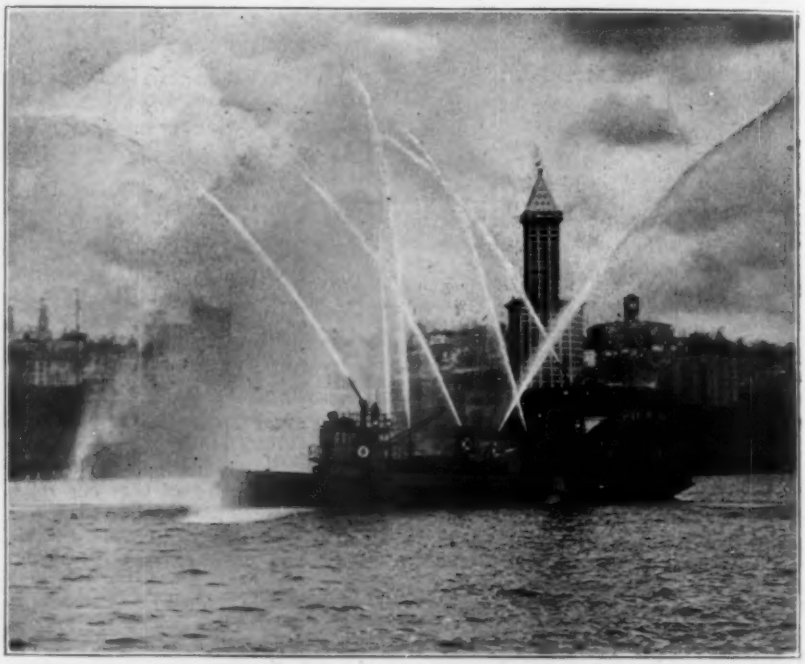
The most outstanding recent improvement in the Department has been in the acquisition of new buildings. The Headquarters Building was completed late in 1928 at a total cost of $245,058. It is a building to which the citizens of any first-class city might point with justifiable pride. It was the object of tireless study and planning. Every appropriate modern innovation and facility that has proved its worth elsewhere has been included, and a number of unique features have been introduced.

Like the other recent fireproof structures of the Fire Department, it represents the cooperation of the latter, the City Building Department, the architect, Frank L. Baker, of the firm of Baker, Vogel and Roush, and the contractors, Scherer and Carlson. It is four stories high. On the main floor is the apparatus room, the officers' garage, the Trophy Room (which is in a sense a historical Fire Department museum), the watch office, and the electrical room where the automatic telephone switching apparatus is installed. There are also lockers, storage space, and an assembly hall, incidentally available as a precinct voting place.

On the mezzanine floor, overlooking the apparatus rooms, are large equipment drying sections, record rooms, and the Department physicians' suite and emergency hospital. The second floor is devoted to officers' rooms and company quarters. The latter contain sleeping rooms that are attractive, well ventilated, and well furnished, and with a lounge room that challenges, in atmosphere and facilities, the most exclusive club. There is a handball court, and—pioneer in the world of firefighters' residence equipment—a modern swimming pool. The men's kitchen and dining rooms, also on this floor, are modern and efficient in all details. The third floor houses the Chief's suite, which includes a personal room and bath, as well as general Department offices. The fourth floor is devoted to fire prevention and inspection activities. The apparatus exit is brilliantly lighted, with automatically operating indirect lighting fixtures.

NEW STATIONS

In line with the Department policy of gradually replacing outmoded buildings—formerly housing horse-drawn equipment—several new fire houses have recently been put into use. The largest and most important of these is Station 14, which has a present property valuation of $104,000. This is located on the old tide flats in the manufacturing section. The Department Drill School is operated here, hence the scaling tower, which is a separate structure. Fire Houses 13 and 16, both completed during 1928, are double company houses of bungalow type, fireproof, and equipped with modern oil-burning heating plants, regulation handball courts, spacious and comfortable rooms for officers, and company lounging, bunk, and mess rooms. All buildings are of Class A construction with exterior finish of light cast stone.



SEATTLE'S FIRE BOAT, "ALKI"
The Fire Department's latest water-defense acquisition

The most recent addition to Seattle's exceptional fire-fighting water craft is the "Alki," a fire boat with a length of 123 feet, a crew of 10 men, and a rated capacity of 12,000 gallons per minute at 200 pounds pump pressure, and 16,000 g.p.m. at 150 pounds.

GEORGE M. MANTOR,
Chief, Fire Department.

EDITORIAL NOTE.—Numerous photographs of the new Seattle buildings appear in The Municipal Index, 1930 edition, in an article reporting progress in the design and construction of fire department buildings.

Iron Removal and Softening Cause Increase in Consumption of Water

By H. S. NIXON
NIXON & REYNOLDS, OMAHA, NEBR.

IN the fall of 1929, Vermilion, S. Dak., put into operation an iron-removal and water-softening plant to serve the population of 2,600, which does not include students attending the State University, located within the city.

Source of Supply

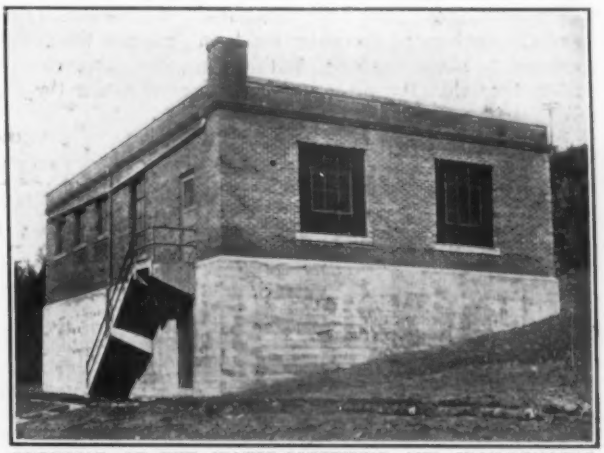
The water-supply for Vermilion is obtained from three wells having a depth of about 40 feet and located on the Missouri River bottoms approximately 4,000 feet east of the city. Water was pumped from these wells through an 8-inch supply line to a reservoir having a capacity of 100,000 gallons, and from there it was pumped into the distribution system by motor-driven pumps.

In the following table showing chemical analyses of the raw and treated water, it will be noted that the untreated water contains approximately 0.3 of a grain of iron oxide per gallon.

	Raw Water Grs. per Gal.	Treated Water Grs. per Gal.
Sodium chloride	.65	.72
Sodium sulphate	11.32	9.43
Magnesium sulphate ..	2.74	4.15
Magnesium carbonate..	6.98	3.23
Calcium carbonate	19.25	1.73
Iron oxide	.33	None

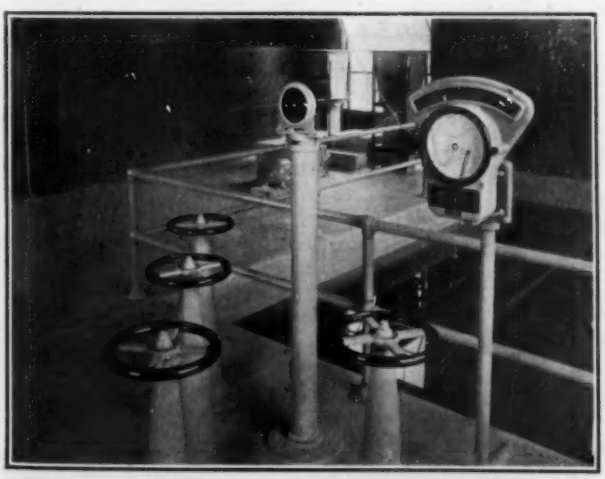
Red Water Leads to New Plant

This iron in the water caused the usual red-water troubles which are typical of such water-supplies. After making softening and coagulation studies, the City Council decided to construct a combined iron-removal and lime-softening plant. The plant consists of a building which houses the settling basin, filter bed, mixing chamber and filter equipment. The settling basin, filter bed, mixing chamber and pipe gallery are of reinforced concrete, the outside walls of which furnish a foundation for the building which covers the entire structure.



EXTERIOR OF THE WATER-SOFTENING AND IRON-REMOVAL PLANT AT VERMILION, S. DAK.

The plant as constructed has a nominal capacity of 400 g.p.m. and consists of aerating chamber, mixing chamber, chemical feed apparatus, settling basin and filter bed. The plant was located near the existing reservoir and so elevated that water is pumped directly from the wells over the aerator. From there it flows through the water-softening plant and back to the reservoir by gravity, thus utilizing the old reservoir as a clear well. The aerator consists of a series of angle-irons suitably spaced in a vertical arrangement so that the water falls over these irons in the form of a cascade. A meter was placed on the untreated water-supply line just ahead of the aerator, so that all raw water entering the plant might be measured. Because of the cold climate, the aerator was built inside the filter room. From the aerator the water flows by gravity to the mixing chamber, where it receives the required dose of lime and alum. These chemicals are fed into the water by means of machines of the dry-feed motor-driven type. Water and chemicals are agitated for approximately 20 minutes in a mechanical mixer consisting of paddles which revolve in a chamber at a speed of approximately ten revolutions per minute. The paddles are driven by a 2-hp. motor connected to the shaft by suitable reduction gears. Water enters at the top of the mixing chamber and leaves at the bottom, where it passes out into the settling basin.



INTERIOR OF THE PLANT, SHOWING THE FILTER ROOM WITH THE CHEMICAL FEED DEVICES, LOSS OF HEAD GAGE, RATE OF FLOW METER AND CONTROL VALVE STANDS

The settling basin is of the usual concrete horizontal flow construction with a concrete baffle-wall through the center. The settling basin has a depth of water of 12 feet and is designed for a detention period of 4 hours. The reservoir can be drained by two plug-valves which are located in sumps.

The Filters

After passing through the settling basin, water is conveyed to a gravity type filter bed having cast iron underdrains, 18 inches of gravel and 30 inches of filter sand. The filter bed is designed for a rate of flow of 2 gallons per minute per square foot. A direct-connected motor-driven centrifugal wash-water pump, controlled from the filter room floor, is located in the pipe gallery. Because of the excellent results obtained in the settling basin, it was decided to deviate from the usual practice and take the wash water from the settling basin rather than the clear well. The filter has the usual high velocity of wash of 2 cubic feet per square foot per minute. A venturi type rate of flow meter was installed. To this venturi tube there was connected a combination registering device which was placed on the filter floor and which indicates the rate of flow and also measures the total water passing through the filter bed.

The chemical storage room has a ca-

pacity of two cars of lime and is over the settling basin. The settling basin is covered with a reinforced concrete floor designed to support a live load of 500 pounds per square foot.

Costs

The operation of the plant has been entirely satisfactory, with the result that all iron troubles have been eliminated and the hardness of the water has been reduced to about 8 grains. Within the short time that the plant has been in operation there has been a marked increase in the quantity of water used within the city. Approximately 22 grains of lime are used per 1,000 gallons of water treated, and 1.2 grains of alum. The cost of lime per 1,000 gallons of water treated is 2.7 cents, and the cost of alum is 0.4-cent per 1,000 gallons, making a total cost of chemicals of 3.1 cents. The operation of the plant requires the attendance of one operator, who takes care of the chemical feeds and makes the necessary analyses. The total cost of the plant was approximately $16,299.

Personnel

The iron-removal and water-softening plant was designed by Nixon & Reynolds, consulting engineers, of Omaha, Nebr. The construction was supervised by R. V. Newcomb, City Engineer of Vermilion. The water-softening and filter equipment was installed by E. W. Bacharach & Co., of Kansas City, Mo., and N. P. Peterson of Vermilion was the general contractor.

Safety Instruction and Junior Patrols

By
SERGEANT R. C. DEMAROFF
SAFETY DIVISION, POLICE DEPARTMENT, FLINT, MICH.

WHEN Flint organized its Safety Division of the Police Department in the fall of 1927, the first step of the Division was to make a study of accident reports. It is not the seriousness of the accident that matters most in such a study, because every accident that happens might be serious. It is causes that count.

It was found in Flint that the major cause of some 350 accidents to school children was the street running habit, and that 216 such accidents happened between the intersections. We concluded that the remedy was a matter of education and rightly belonged with the schools of the community. A Safety Education Committee was formed, including the Superintendent of Schools, the Chief of Police, the Secretary of the Flint Automobile Club, and the Secretary of the Safety Council. Care was taken to make it clear to the teachers that there would be no extra-curricular activities within the schools, the only extra activity being the establishment of Safety Patrols, which would be supervised by the Police Department.

Lesson-leaves to enable the teacher to correlate the subject of safety with the regular curriculum were supplied monthly without charge by the Flint Automobile Club and the Safety Council. It would be poor psychology for a police officer to walk into a schoolroom and attempt to dictate to a teacher who has spent several years in the study of her profession just how she should instruct the children, but if that same police officer will keep the teacher posted as to what is taking place on the street in regard to the accident situation, also as to what some of the other teachers are doing in the other schools, he can be of great assistance to the teacher, and at the same time accomplish what he is trying to do in prevention work.

We were satisfied that spectacular efforts gain little. The daily teaching of correct habits is needed to fit the child for his place on the street. The bad habit of street running can be overcome only by developing a stronger "Stop, Lock and Walk" habit.

Special contests that can be worked into some of the regular subjects, such as a scrapbook, safety poster or safety slogan contest, occasionally help. A prize that will benefit the school helps a great deal in securing the cooperation of the teachers in these special campaigns. In our poster contest, for example, the prize was a picture, selected by a group of art teachers, to be hung in the hall of the winning school.

How the Junior Patrol Operates

Our chief reliance for putting into actual practice what the child is taught is the Junior Patrol. Its principal duty is to see that the children cross the street only when it is safe for them to do so, and always to insist that the children walk while crossing. The first step is to watch the assemblage and dismissal of the school to note the natural crossing places. Sometimes we find that the most natural way for a large group is to cross some particular street in the center of the block. We naturally prefer to eliminate such crossings whenever possible, but in three or four instances we have found it necessary to leave the crossing where we found it. Traffic regulations dealing with children must be just as reasonable as regulations for older people if we expect to have them obeyed. We have always found the children ready to cooperate with us, and at schools where the children had been crossing anywhere within a range of six or eight blocks from the school, we find them now gathering at one point, the point that is protected by the Patrol boys.

We always designate these crossings by painting them with a four-inch white strip, with directional arrows in each lane. The standard school caution sign is placed on all streets approaching the school. At one location, where we had about 600 children crossing a through street just below a small grade where the view of the driver is obstructed until he is within 200 feet of the crossing, we place the sign in the center of the road while the Patrol is on duty. The captain of the Patrol is held responsible for the care of this sign. There is a reduction of at least ten miles per hour in the speed of traffic while that sign is out in the road, as the driver realizes that it is there only when the children are actually on the way to and from school. It would soon lose its effectiveness if left in the center position at all times.

With one exception there has not been a single accident at a crossing protected by Patrol boys. This one exception was caused by a drunken driver and could not have been averted if police officers had been stationed there. Our Patrol system numbers about 800 boys, who are caring for 114 intersections at the present time. To provide police officers for those intersections would enormously increase the Department appropriation. An officer detailed for school traffic, owing to the schedule he must follow, is not a great deal of benefit to the Department for regular police work. Estimating an officer's wages, supervision, relief on days off, etc., at $2,000 a year, we feel that through the use of these school patrols we are saving taxpayers of Flint $228,000 a year.

The Patrol boys do not control vehicular traffic; they are there to regulate pedestrian traffic only. The acid test is, of course, results. Our school population jumped from 28,900 in 1927 to 38,700 in 1929; our accident rate dropped from 346 injuries and 10 fatalities in 1927 to 296 injuries and 3 fatalities in 1928, with 310 injuries, and 4 fatalities in 1929!

—Excerpts from a paper presented at the 1930 Conference on Highway Engineering at the University of Michigan.

Improving Purchasing Methods Through Specifications

By F. J. SCHLINK
ASSISTANT SECRETARY,
AMERICAN STANDARDS ASSOCIATION

IN all buying in which economy is a factor and which is not carried out for purposes of conspicuous display, it is necessary to seek the aid of technical requirements as to materials, processes or performance, or some combination of these three, plus laboratory or factory tests of varying degrees of elaborateness or difficulty.

To buy goods through a central agency is only a part of the problem, an important part, to be sure, but not to be compared in its power with knowing as much or more of a fundamental nature about the goods than does their producer, or at least his agent with whom the purchaser comes into contact. The buying standards of mid-Victorian days, the drive of barter, and haggling as to price, without the slightest knowledge of what that price obtains in the way of service and performance of the goods, are common today even in public utilities, where perhaps the best steps toward scientific purchasing have been taken outside the Federal Government itself.

We all know numerous buyers who, with uncanny prescience and through a quite inexplicable generosity of suppliers, are "getting rock bottom prices" on everything, whose price arrangements are so low that they must be kept "in strictest confidence," and who have developed an unbounded trust in some particular supplier who assures them that no other product can be quite so good as his own, and no other price so low, service considered. Yet even a slight knowledge of purchase methods suffices to show that even the system of competitive bidding on established requirements is a practically unknown affair in some businesses which have a turnover of fifty millions and more. This is no reason why the municipal or county purchasing agent should imitate the less progressive of the purchasing agents of business corporations. I find purchasing agents who think themselves competent to buy on judgment almost any commodity of the complex modern market, from deck paint to dishwashing machines, from structural rivets to tooth paste, and who turn pale at the idea of spending $25 for a test of a sample of glue on a $10,000 purchase.

The theory underlying the specification technique is simple. Suppliers evidently do not know what is best to supply, as is witnessed by the fact that whenever possible they produce goods of varying characteristics for which they claim varying advantages. Or, when they do know what is best, the old and new competition frequently forces them into the manufacture of inferior or meaningless variations. Therefore, says the expert buyer in government services, let us decide for ourselves, on sound technical advice, which among many types of articles offered, best combine the qualities we need at a minimum expense, *all costs considered*, and then prepare a specification that will make it possible for the manufacturer to know exactly what we want, and for our inspectors to determine when such requirements have been met.

How Specifications Work

Everyone knows what carbon paper is intended to do, but when one has set down in numerical, measurable terms what that function is, an advance has been made that enables the buyer to review the maze of carbon paper claims from a totally new and advantageous angle. When the requirement is set down, for example, that standard weight typewriter carbon shall make not less than five clean, legible carbon copies at a time, with elite type, using a No. 16, 50 per cent rag bond first sheet, and No. 9 manifold bond copy sheets against a rubber platen, a beginning has been made in carbon paper wisdom which certainly exceeds that of any ordinary carbon paper salesman, and goes far beyond that of the retail stationer. A point has been reached where the mere reiteration of claims that each brand on the market is the best, becomes utterly meaningless. From now on, you have to be shown, and have a yardstick with which to measure the showing.

Specifications cut out futile and time-consuming correspondence in which neither side knows precisely what it is talking about. They sharpen the edge of inspection, reducing it oftentimes to an instrument of precision capable of eliminating all or nearly all the manifest intangibilities and variabilities of personal judgment. Through specifications, buyer and seller speak the same language, and that a logical one, berefit of magic, non-existent distinctions, and ambiguities.

A case has been cited by Edward T. Gushee where the price of a product dropped from 70 to 40 cents per pound through the simple expedient of the purchasing agent's ascertaining by calculation a manufacturer's production cost and using that information in negotiations. This can be repeated for thousands of commodities, particularly the simple chemical mixtures and compounds that make up such a considerable proportion of ordinary purchasing —furniture polish, lubricating oils and greases, boiler compound, and a thousand other common products.

Scientific Tests Necessary in Specification Buying

Successful operation of specification buying without an effective technique of tests is an impossibility, and any apparent gains are likely in the end to prove fictitious. A steady and reliable connection with a testing laboratory or with several testing laboratories should be established so that the experts may provide not merely a formal statement of chemical composition, strength, or whatnot, but can advise in respect to those innumerable items where the skilled judgment of the technician should enter, and danger points need to be guarded against. Unless unusually close and favorable relations exist with the testing laboratory, someone in the purchasing department must provide a semi-technical link between the findings of the laboratory and the decisions of

Standards Available for Municipalities

The American Standards Association maintains an extensive Information Service which has in its files over 10,000 authoritative standards and specifications in practically all fields. Copies of standards may be either borrowed or purchased at cost from the A. S. A. The Association acts as a central distributing agency for the standards of trade associations and technical societies, listed in the National Directory of Commodity Specifications. The Association's technical staff is prepared to assist purchasing agents in obtaining standards and specifications and applying them to their particular needs. Inquiries should be addressed to the American Standards Association, 29 West 39th Street, New York.

the purchasing agent. The judgment of the competence of a laboratory and interpretation of its tests are not clerical matters but points requiring a good deal of broad knowledge about methods of manufacture of goods, the relative importance of various requirements, and the methods of conducting the more usual tests. Accordingly, the problem of advising the purchasing agent in the case of close decisions on quality and price should be assigned to one or more engineers or technically trained persons who have the necessary scientific background.

In administering purchasing on a scientific basis it is nearly always necessary to get facts into numerical form. We must learn to think in terms of price per ton-mile, per heat unit, per unit of oiliness, soapiness, absorbing power, blackness, strength, or whatever the service may require. In simple cases it may be per pound or per gallon, but with such an item as liquid soap, obviously it is only in a minor sense a matter of volume of liquid; more important is the question of how "soapy" the mixture is.

Tests without standards are only an imperfect approach to the very difficult problem of scientific purchasing. It is impossible in the nature of things to test everything that is offered, or that one might wish to have offered for a given purpose. There are between 400 and 1,700 different kinds of oil burners, and to subject all these to test would require the full-time services, not of one man, but of several, and by the time they were finished many of the burners would have been redesigned and the work would have to be begun again. The specification enables one to cut away some of the underbrush before beginning the test. Usually a specification contains some requirements which can be applied by simple inspection, or by very easy tests, and a certain large proportion of the offerings can be rejected without any great trouble or expense. Likewise, the manufacturer who knows that his product will not meet the specification is likely not to submit it, particularly if he is charged with the expense of the test—a possible expedient in the case of very large buyers whose business is very desirable.

A Just Basis of Rejections Necessary

When you are ready to buy under specifications, you must be prepared to reject when the goods do not meet requirements. If you do not do so, you will find suppliers who will constantly skirt the edge of the specification requirements, hoping that if their goods do not fall too far below standard, the buyer can be persuaded to accept the purchase. To accept definitely faulty goods is unfair to the unsuccessful bidders who might also have supplied substandard products, possibly at a lower price than the successful bidder. Not only should rejections be made when called for by the findings of tests and inspections, but the cost of transportation of the rejected shipments should be borne by the supplier. If the supplier habitually fails to meet specifications (and this not an uncommon occurrence), he should be put upon the list of bidders whose proposals are not considered, at least until such time as he has made a reasonable showing of willingness and sustained ability to meet requirements. It costs money in delay and services, to reject goods even when shipping costs are stood by the supplier, since new bids must be advertised for and new tests carried out.

The ultimate purpose of standardization is the systematizing and ordering of knowledge about goods. The purchasing agent's problem at best is one of enormous complexity, as wide in its scope as the geographical distribution of the primary sources of supply, and changing constantly with the growth of new industries and new techniques. The specification technique is the means through which this widespread and mobile flux of knowledge can to some extent be reduced from chaos to order and brought within the understanding and practical application of a single individual or department.

Which Are Our 25 Largest Cities?

As readers of this magazine must be aware, THE AMERICAN CITY is far from regarding a mere increase in population as the most important element in municipal progress. There is a very natural and widespread interest, however, as to what the population rank of the larger cities throughout the United States will prove to be when the Federal census enumeration, starting this month, is tabulated.

With the cooperation of the chambers of commerce in nearly 90 per cent of the cities having a population of over 50,000 in 1920, THE AMERICAN CITY is enabled to present the estimates for 1930 which appear on the facing page. The 25 largest cities according to the decennial censuses of 1910 and 1920 and the chamber of commerce estimates for 1930 are tabulated below.

A question of special interest, the answer to which cannot be known until the Federal census figures are available, is whether the largest cities have grown at a proportionately greater rate during the last ten years than during the decade from 1910 to 1920. The 25 cities shown in the middle column had an increase of 24.3 per cent in population during the ten years from 1910 to 1920. These same cities, if the chamber of commerce estimates prove to be approximately correct, will show a population increase of just under 30 per cent for the ten years just ended. This estimated gain may, of course, be due in some measure to the optimism of chamber of commerce executives; and consideration should also be given to the fact that in at least five of the cities new territory has been annexed within the present corporate limits of the city during the last ten years.

One of the best signs of the time is the growing recognition by industrial and civic leaders that of the satisfactions of life, bigness is not the chief. To quote from an editorial in the *Pittsburgh Press* of March 19, 1930:

"The value of a city is to be measured not by the number but the character of its population. Not by the quantity production of its factories, but by the quality. Not by the extent of its payrolls, but by their adequacy. Not by the size of its business and banking mergers, but by the profits to both management and labor. Not by the number of its churches, schools and libraries, but by the kind of religion, education, and culture which those institutions produce in the daily life of the city."

25 Largest Cities in 1910	25 Largest Cities in 1920	25 Largest Cities in 1930?
1—New York, N. Y.	1—New York, N. Y.	1—New York, N. Y.
2—Chicago, Ill.	2—Chicago, Ill.	2—Chicago, Ill.
3—Philadelphia, Pa.	3—Philadelphia, Pa.	3—Philadelphia, Pa.
4—St. Louis, Mo.	4—Detroit, Mich.	4—Detroit, Mich.
5—Boston, Mass.	5—Cleveland, Ohio	5—Los Angeles, Calif.
6—Cleveland, Ohio	6—St. Louis, Mo.	6—Cleveland, Ohio
7—Baltimore, Md.	7—Boston, Mass.	7—St. Louis, Mo.
8—Pittsburgh, Pa.	8—Baltimore, Md.	8—Baltimore, Md.
9—Detroit, Mich.	9—Pittsburgh, Pa.	9—Boston, Mass.
10—Buffalo, N. Y.	10—Los Angeles, Calif.	10—Pittsburgh, Pa.
11—San Francisco, Calif.	11—Buffalo, N. Y.	11—San Francisco, Calif.
12—Milwaukee, Wis.	12—San Francisco, Calif.	12—Buffalo, N. Y.
13—Cincinnati, Ohio	13—Milwaukee, Wis.	13—Milwaukee, Wis.
14—Newark, N. J.	14—Washington, D. C.	14—Washington, D. C.
15—Washington, D. C.	15—Newark, N. J.	15—New Orleans, La.
16—Los Angeles, Calif.	16—Cincinnati, Ohio	16—Newark, N. J.
17—New Orleans, La.	17—New Orleans, La.	17—Cincinnati, Ohio
18—Minneapolis, Minn.	18—Minneapolis, Minn.	18—Minneapolis, Minn.
19—Jersey City, N. J.	19—Kansas City, Mo.	19—Kansas City, Mo.
20—Kansas City, Mo.	20—Seattle, Wash.	20—Indianapolis, Ind.
21—Seattle, Wash.	21—Indianapolis, Ind.	21—Seattle, Wash.
22—Indianapolis, Ind.	22—Jersey City, N. J.	22—Oakland, Calif.
23—Rochester, N. Y.	23—Rochester, N. Y.	23—Atlanta, Ga.
24—Denver, Colo.	24—Portland, Ore.	24—Portland, Ore.
25—Portland, Ore.	25—Denver, Colo.	25—Jersey City, N. J.

How Closely Can a Chamber of Commerce Secretary Estimate His City's Population?

Here Are Predictions from 127 of the 144 Cities of Over 50,000 Population as to What the 1930 Federal Census Figures Will Show

ON February 10 this magazine addressed a letter to the secretary or manager of the leading civic-commercial organization in every city in the United States having, according to the 1920 census, a population of 50,000 or more. The suggestion was made that each secretary submit for publication in the April number of THE AMERICAN CITY his estimate as to what his city's population will be when the 1930 Federal census is taken this year.

Responses received up to March 25 are here published. There are also given, for each city in the population group mentioned, the 1910 and the 1920 census figures and the estimate of the Bureau of the Census for 1928.

When the 1930 figures are available, THE AMERICAN CITY will published a list of the twelve cities whose populations have been most accurately estimated, and a page group of portraits of the civic-commercial organization executives who submitted such figures.

NOTE:—The estimates of the Bureau of the Census between the decennial census periods are based not on any actual enumeration, but on a mathematical computation based wholly on the previous rate of growth of the city. The Cleveland, St. Louis and Boston Chambers of Commerce, in submitting their estimates, explained that they had used this method of computation. No explanation was received from other cities as to the methods used. Several secretaries explained, however, that the figures given do not include any suburban population outside of the city's corporate limits—a rule which it is assumed all have observed in preparing their estimates.

City	1910 Federal Census Enumeration	1920 Federal Census Enumeration	1928 Federal Census Estimate	1930 Chamber of Commerce Estimate
Akron, Ohio	69,067	208,435	*	270,000
Albany, N. Y.	100,253	113,344	120,400	135,000
Allentown, Pa.	51,913	73,502	99,400	108,500
Altoona, Pa.	52,127	60,331	69,100	91,500
Atlanta, Ga.	154,839	200,616	255,100	361,000†
Atlantic City, N. J.	46,150	50,707	54,700	58,000
Augusta, Ga.	41,040	52,548	56,700	.....
Baltimore, Md.	558,485	733,826	830,400	840,000
Bayonne, N. J.	55,545	76,754	95,300	99,750
Berkeley, Calif.	40,434	56,036	71,000	85,000
Bethlehem, Pa.	12,837	50,358	67,600	68,000
Binghamton, N. Y.	48,443	66,800	74,800	84,000
Birmingham, Ala.	132,685	178,806	222,000	291,400
Boston, Mass.	670,585	748,060	799,200	810,000
Bridgeport, Conn.	102,054	143,555	*	165,000
Brockton, Mass.	56,878	66,254	*	.....
Buffalo, N. Y.	423,715	506,775	555,800	592,000
Cambridge, Mass.	104,839	109,694	125,800	.....
Camden, N. J.	94,538	116,309	135,400	145,000
Canton, Ohio	50,217	87,091	116,800	117,600
Charleston, S. C.	58,833	67,957	75,900	84,936
Chattanooga, Tenn.	44,604	57,895	73,500	135,000†
Chester, Pa.	38,537	58,030	74,200	75,000
Chicago, Ill.	2,185,283	2,701,705	3,157,400	4,690,000
Cincinnati, Ohio	363,591	401,247	413,700	450,000
Cleveland, Ohio	560,663	796,841	1,010,300	1,064,772
Columbus, Ohio	181,511	237,031	299,000	316,420
Covington, Ky.	53,270	57,121	59,000	68,900
Dallas, Texas	92,104	158,976	217,800	.....
Davenport, Iowa	43,028	56,727	*	75,073
Dayton, Ohio	116,577	152,559	184,500	191,347‡
Denver, Colo.	213,381	256,491	294,200	333,000
Des Moines, Iowa	86,368	126,468	151,900	160,000
Detroit, Mich.	465,766	993,678	1,378,900	1,634,000
Duluth, Minn.	78,466	98,917	116,800	117,500
East Orange, N. J.	34,371	50,710	65,000	72,000
East St. Louis, Ill.	58,547	66,767	74,000	78,297
El Paso, Texas	39,279	77,560	117,800	118,000
Elizabeth, N. J.	73,409	95,783	*	120,000
Erie, Pa.	66,525	93,372	*	135,000
Evansville, Ind.	69,647	85,264	98,100	100,000
Fall River, Mass.	119,295	120,485	134,300	117,500
Flint, Mich.	38,550	91,599	148,800	158,000
Fort Wayne, Ind.	63,933	86,549	105,300	127,000
Fort Worth, Tex.	73,312	106,482	170,600	202,316
Gary, Ind.	16 802	55,378	89,100	.....
Grand Rapids, Mich.	112,571	137,634	164,200	182,371
Harrisburg, Pa.	64,186	75,917	86,900	90,000
Hartford, Conn.	98,915	138,036	172,300	.....
Haverhill, Mass.	44,115	53,884	*	50,000
Hoboken, N. J.	70,324	68,166	*	68,000
Holyoke, Mass.	57,730	60,203	60,400	58,000
Houston, Tex.	78,800	138,276	*	301,000
Huntington, W. Va.	31,161	50,177	68,600	82,000
Indianapolis, Ind.	233,650	314,194	382,100	400,000
Jacksonville, Fla.	57,699	91,558	140,700	151,986
Jersey City, N. J.	267,779	298,103	324,700	346,000
Johnstown, Pa.	55,482	67,327	73,700	73,300
Kansas City, Kans.	82,331	101,177	118,300	129,392
Kansas City, Mo.	248,381	324,410	391,000	429,000
Knoxville, Tenn.	36,346	77,818	105,400	148,128
Lancaster, Pa.	47,227	53,150	58,300	61,000
Lansing, Mich.	31,229	57,327	79,600	101,875
Lawrence, Mass.	85,892	94,270	*	90,000
Lincoln, Nebr.	43,973	54,948	71,000	80,922†
Little Rock, Ark.	45,941	65,142	79,200	102,300
Long Beach, Calif.	17,809	55,593	*	164,500
Los Angeles, Calif.	319,198	576,673	*	1,468,663
Louisville, Ky.	223,928	234,891	329,400	320,000
Lowell, Mass.	106,294	112,759	*	105,000
Lynn, Mass.	89,336	99,148	105,500	108,028
Macon, Ga.	40,665	52,995	61,200	73,500
Manchester, N. H.	70,063	78,384	85,700	.....
Memphis, Tenn.	131,105	162,351	190,200	256,000†
Milwaukee, Wis.	373,857	457,147	544,200	572,000
Minneapolis, Minn.	301,408	380,582	455,900	450,000
Mobile, Ala.	51,521	60,777	69,900	71,300
Nashville, Tenn.	110,364	118,342	139,600	150,000
New Bedford, Mass.	96,652	121,217	*	127,285
New Britain, Conn.	43,916	59,316	72,800	81,000
New Haven, Conn.	133,605	162,537	187,900	191,912
New Orleans, La.	339,075	387,219	429,400	500,000
New York, N. Y.	4,766,883	5,620,048	6,017,500	6,110,000
Newark, N. J.	347,469	414,524	473,600	485,000
Niagara Falls, N. Y.	30,445	50,760	68,300	75,000
Norfolk, Va.	67,452	115,777	184,200	184,500
Oakland, Calif.	150,174	216,261	274,100	361,200
Oklahoma City, Okla.	64,205	91,295	*	200,000
Omaha, Nebr.	124,096	191,601	222,800	225,481
Passaic, N. J.	54,773	63,841	71,800	69,950
Paterson, N. J.	125,600	135,875	144,900	147,045
Pawtucket, R. I.	51,622	64,248	73,100	75,000
Peoria, Ill.	66,950	76,121	84,500	105,000
Philadelphia, Pa.	1,549,008	1,823,779	2,064,200	2,157,851
Pittsburgh, Pa.	533,905	588,343	673,800	690,000
Portland, Me.	58,571	69,272	78,600	77,538
Portland, Ore.	207,217	258,288	*	356,823
Portsmouth, Va.	33,190	54,387	61,600	60,000
Providence, R. I.	224,326	237,595	286,300	306,861
Racine, Wis.	38,002	58,593	74,400	.....
Reading, Pa.	96,071	107,784	115,400	.....
Richmond, Va.	127,628	171,667	194,400	206,000
Roanoke, Va.	34,874	50,842	64,600	73,117
Rochester, N. Y.	218,149	295,750	328,200	336,813
Rockford, Ill.	45,401	65,651	82,80	93,800
Sacramento, Calif.	44,696	65,908	75,700	102,500
Saginaw, Mich.	50,510	61,903	75,600	78,500
St. Joseph, Mo.	77,403	77,939	78,500	85,700
St. Louis, Mo.	687,029	772,897	848,100	866,861
St. Paul, Minn.	214,744	234,698	*	.....
Salt Lake City, Utah	92,777	118,110	138,000	150,500
San Antonio, Tex.	96,614	161,379	218,100	239,889
San Diego, Calif.	39,578	74,683	119,700	158,500
San Francisco, Calif.	416,912	506,676	585,300	625,000
Savannah, Ga.	65,064	83,252	99,900	.....
Schenectady, N. Y.	72,826	88,723	93,300	98,650
Scranton, Pa.	129,867	137,783	144,700	147,750
Seattle, Wash.	237,194	315,312	383,200	400,000
Sioux City, Iowa	47,828	71,227	80,000	.....
Somerville, Mass.	77,236	93,091	102,700	105,350
South Bend, Ind.	53,684	70,983	86,100	.....
Spokane, Wash.	104,402	104,437	109,100	128,120
Springfield, Ill.	51,678	59,183	67,200	73,467
Springfield, Mass.	88,926	129,614	149,800	159,000
Springfield, Ohio	46,921	60,840	73,000	76,852
Syracuse, N. Y.	137,249	171,717	199,300	205,000
Tacoma, Wash.	83,743	96,965	110,500	119,324
Tampa, Fla.	37,782	51,608	113,400	.....
Terre Haute, Ind.	58,157	66,083	73,500	.....
Toledo, Ohio	168,497	243,164	313,200	323,262
Topeka, Kans.	43,684	50,022	62,800	65,000
Trenton, N. J.	96,815	119,289	139,000	136,000
Troy, N. Y.	76,813	72,013	72,300	75,000
Tulsa, Okla.	18,182	72,075	170,500	185,000
Utica, N. Y.	74,419	94,156	104,200	112,000
Washington, D. C.	331,069	437,571	552,000	570,000
Waterbury, Conn.	73,141	91,715	*	111,419
Wheeling, W. Va.	41,641	56,208	*	76,525
Wichita, Kans.	52,450	72,217	99,300	117,000
Wilkes-Barre, Pa.	67,105	73,833	91,900	.....
Wilmington, Del.	87,411	110,168	128,500	133,666
Worcester, Mass.	145,986	179,754	197,600	205,850
Yonkers, N. Y.	79,803	100,176	121,300	125,000
Youngstown, Ohio	79,066	132,358	174,200	.....

* Where the last census showed a decrease or where there were exceptions conditions of growth, no estimates were made.

† Including territory annexed since 1920 census.

‡ Represents present corporate limits. If annexation is accomplished in time for official census, the Chamber of Commerce estimate is 211,737.

Cincinnati Firemen Trained in Life Saving and in Police Service

The Use of First Aid Equipment and Gas Masks Increases the Department's Efficiency

By BARNEY J. HOUSTON

CHIEF, CINCINNATI FIRE DEPARTMENT

COLONEL C. O. SHERRILL, CITY MANAGER
Cincinnati's Managing Executive is shown adjusting a gas mask

THE duties of a fireman and a fire department are commonly considered to be the affording of protection to life and property. Fireman training usually emphasizes the extinguishing of fires and, of late years, the prevention of fires. Though it is always clearly understood that the first duty of a fireman is to save life, the training most firemen get in this phase of their work covers only the rescuing of people from burning buildings.

Early in 1929 it was decided by C. O. Sherrill, City Manager, and the officials of the Cincinnati Fire Department, that all the city firemen should be thoroughly trained in first aid and that all apparatus should be equipped with first aid material for emergency use. Under the supervision of the Cincinnati Health Department, with Dr. William H. Peters, Health Commissioner, Dr. L. W. Heiser, of the Health Department, and Marshal H. C. Williams, drillmaster of the Cincinnati Fire Department, all firemen and officials, from the Chief down, have been thoroughly trained in first aid according to the course of instruction outlined by the American Red Cross. This includes the sterile dressing of minor and major wounds, controlling the flow of blood in cases of arterial bleeding, preparing patients for transportation in cases of bone fractures and dislocations, the different types of lifts and carries, and the correct and approved methods of artificial respiration in cases of gas poisoning, suffocation, electric shock, and drowning. The men have been examined and re-examined both orally and by written examination, and most of them have now qualified for Red Cross certificates for proficiency in first aid work.

Considerable time was spent in investigating first aid kits, and a very substantial and durable, water- and dustproof kit manufactured by the Mine Safety Appliances Co., of Pittsburgh, was selected. All fire apparatus, including the Chief's, Assistant Chief's, and Marshal's cars, are now equipped with the standard Fire Department first aid kits. These are carried at all times.

First Aid Training and Equipment

The first aid kits contain compress bandages for the quick application of sterile dressings to wounds of all sizes, picric acid gauze for the temporary sterile and relief dressings of burns, wire splints for the supporting of bone fractures preparatory to transportation, triangular bandages for covering bandage dressings and slings, tourniquets for the stoppings of arterial bleeding, and eye-dressing material for the bandaging and covering of a wounded or burned eye, or an eye with a foreign particle in it, so that the patient can be taken to a physician without having further injury take place. The kits also contain liquid ammonia for the treatment of shock by inhalation, and liquid mercurochrome to be used in preventing infections. These liquids are carried in ampulla form and packed so that it is impossible for breakage and spillage to take place even with exceedingly rough handling and jolting.

For some years industrial, public utility, and mining companies have had their employees completely trained in the use of first aid facilities. To the best of our knowledge, the Cincinnati Fire Department is the first of the large city fire departments in the United States to completely train its men in first aid and rescue work, provide first aid facilities on all apparatus, and standardize on the methods of first aid training outlined by the American Red Cross.

The invaluable service rendered by Life Saving Squad No. 52 of the Cincinnati Fire Department is well known. This squad responds to approximately 1,400 calls per year and is thoroughly equipped for rescue and first aid work in practically any emergency. It is understood by all members of the Fire Department that the Life Saving Squad is to be called in all serious accidents or emergency cases; it is also well understood that all possible assistance and service is to be rendered by any and all members of the Fire Department before the Life Saving Squad is called or before it arrives. In other words, the duties of the Life Saving Squad remain as they have been outlined for it, and the fact that all firemen are now trained in first aid does not cut into its activi-

EDWARD FRANKS, MARSHAL OF THE FIRST FIRE DISTRICT
The "buggy" of this Cincinnati Fire Department official is equipped at all times with mask and first aid kit

ties or cut down its responsibilities.

The Life Saving Squad and all other Fire Department members understand likewise that they shall in no way supersede or interfere with the duties or responsibilities of a registered physician in exercising first aid or rescue work. We have been particularly careful to emphasize that the training the firemen have received is, as the name connotes, for first aid or temporary relief purposes only before a physician arrives or before the patient is taken to a hospital or otherwise turned over to a physician.

The Firemen Have Police Powers

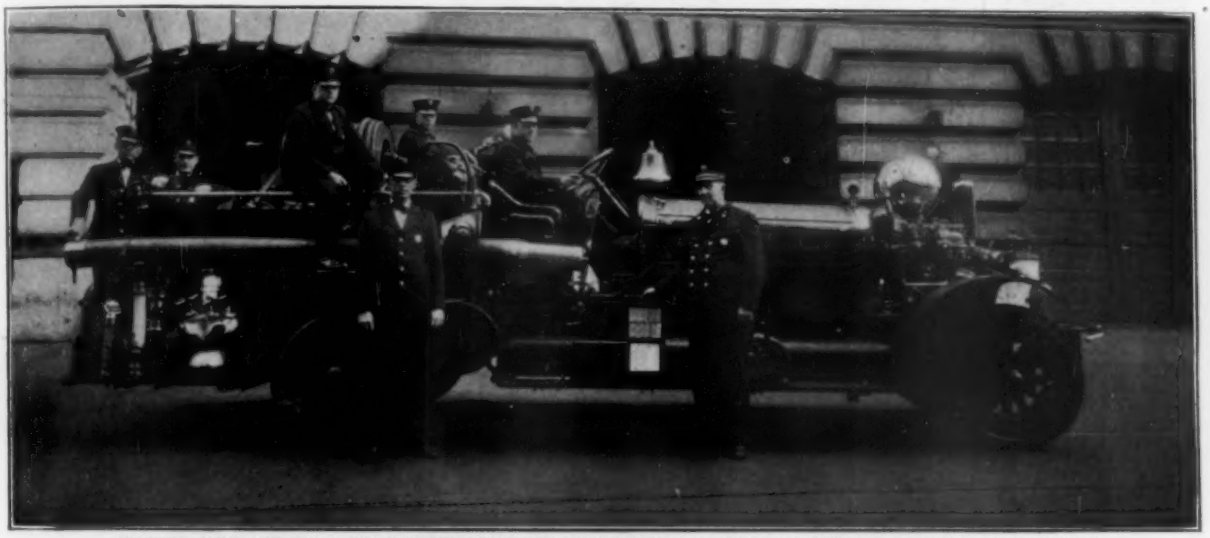
In order that the Cincinnati Fire Department may render more complete and satisfactory service in cases of emergency, all members of the Fire Department have, on the order of City Manager Sherrill, been endowed with police powers. Each station house and all officers are equipped with arms and ammunition to be used in case necessity arises. It was felt that the Fire Department could render invaluable service in quelling riots or large disturbances and that its principal function in exercising police powers would be of the above-mentioned character. Nevertheless, since police powers were given to Fire Department members early in 1929, hundreds of arrests have been made by firemen for various offenses, from minor traffic violations to arson and murder. In November, 1929, a negro murderer was arrested by Marshal Edward Franks of the First District, and has since been sentenced to the electric chair.

The firemen have been instructed to use their police powers with discretion and only when necessary, as, for example, when policemen are not readily available. To date, there has been no occasion for adverse criticism against firemen exercising police authority. On the contrary, their activities in this respect have enlarged the scope of operations and public service rendered by both Fire and Police Departments.

The Value of Gas Masks

In the near future the Cincinnati Fire Department will be completely equipped with Burrell All Service gas masks. After considerable investigation, which included an exhaustive test of masks in extreme heat, carbon monoxide fumes, formaldehyde and sulphur fumes, and fumes from burning X-ray and other films, witnessed and performed by City Manager Sherrill, Grover Smith, Executive Assistant to the City Manager, First District Marshal Franks, Marshal H. C. Williams, Health Commissioner Peters and others, it has been decided that gas masks for general use in the Fire Department will greatly enlarge the scope of operations and increase efficiency. Life Saving Squad No. 52 has, for years, been equipped with this mask as well as with self-contained oxygen breathing apparatus which permits men to enter any and all kinds of atmospheres, even under water.

We have realized, of course, that with the widespread use of automobiles, electric refrigerators, and the more general use and manufacture of dangerous and poisonous chemicals and artificial gas, the service to be rendered by an up-to-date fire department is growing more technical and dangerous, at least, it is more dangerous if without adequate protection. The recent Cleveland Clinic disaster demonstrated very forcibly that firemen have more than ordinary fire and smoke to contend with. It is well known, moreover, that time does not permit us to determine what kind of poisonous gas we have to go into in case of fire. Furthermore, we now know that all smoke contains carbon monoxide, the same deadly gas given off in automobile exhaust, and that the denser the smoke, the higher the percentage of carbon monoxide it contains. The day of the smoke-eater has passed; we expect firemen to exhibit courage when necessary, only when necessary, and never foolishly. No doubt firemen will always have to withstand a certain amount of smoke and fumes, but when adequate protection against smoke and fumes is available it should be used.



ENGINE COMPANY NO. 3 OF CINCINNATI FIRE DEPARTMENT, LOCALLY CALLED THE "GIFTS" COMPANY BECAUSE IT WAS ORIGINALLY GIVEN TO THE CITY BY THE CITIZENS
Being in the heart of the high-value district it is one of the most active companies in the city

The fire loss in Cincinnati compared to other cities is low, but it is not so low as it is possible to make it. The actual loss by fire is usually much less than the water damage incurred in extinguishing the blaze. Gas masks can be used effectively in cutting down water damage, because with their use dense smoke can be penetrated with safety, the seat of the fire determined, and water streams used with maximum efficiency and minimum waste.

The All Service or all purpose mask provides protection against smoke, any and all industrial gases or combinations thereof, and carbon monoxide. Face and eye as well as respiratory protection is afforded. The Fire Department equipped with gas masks can render invaluable service to the Police Department in tear gas or smoke screen riots. All firemen will be thoroughly drilled and examined periodically in the use, care, and limitations of gas masks, as they are on other equipment used in fire fighting.

We have every reason to believe that the efficiency of the Cincinnati Fire Department is high. By endowing the men with police powers, training and equipping them for first aid work, and equipping the Department with masks, a much more satisfactory and complete public service to the taxpayers has been made possible.

THE NEW SILHOUETTE OF THE TULSA SKYLINE

How Tulsa Will Expend $6,230,000 to Carry Out Its City Plan Commission's Recommendations

By WILLIAM HOLDEN
EXECUTIVE VICE-PRESIDENT, TULSA CHAMBER OF COMMERCE; SECRETARY-ENGINEER, CITY PLAN COMMISSION

THAT Tulsa, Okla., may become a well-ordered and symmetrical metropolis of 500,000 people within the next 25 years, provisions for a definite start toward completion of a major street plan within that period have been included in Tulsa's $6,230,000 city bond issue, recently passed. Of the total amount, $1,150,000 will be expended over a three-year period, in practically equal amounts. It is the plan of the City Commission and of city plan engineers that emergency projects and other pressing requirements will be taken care of first, with other needs to follow in the order of their importance.

Present calculations of the City Engineer show that the entire amount of the expenditure will be saved the taxpayers in the space of ten years. Purchase of land and property condemnations for widening and alteration of street courses are now being made, which if delayed several years would entail a much greater cost on account of increasing property values.

The major street plan includes all areas within a radius, generally speaking, of six miles from the downtown section. East on Federal Drive and Eleventh Street, a slightly greater distance is included. It is the plan of the city planners that even in outlying areas where streets have not yet been laid out, the major street plan will insure extensions along symmetrical and well-balanced lines.

Widening of present thoroughfares will also become part of the major program. Arterial streets have been determined by their relation to existing major highways, and by actual traffic counts, and these have been designated as major streets in the plan. They will be widened to a maximum of eight lanes of traffic, and straightened and otherwise improved to provide direct through-town trafficways as far as possible.

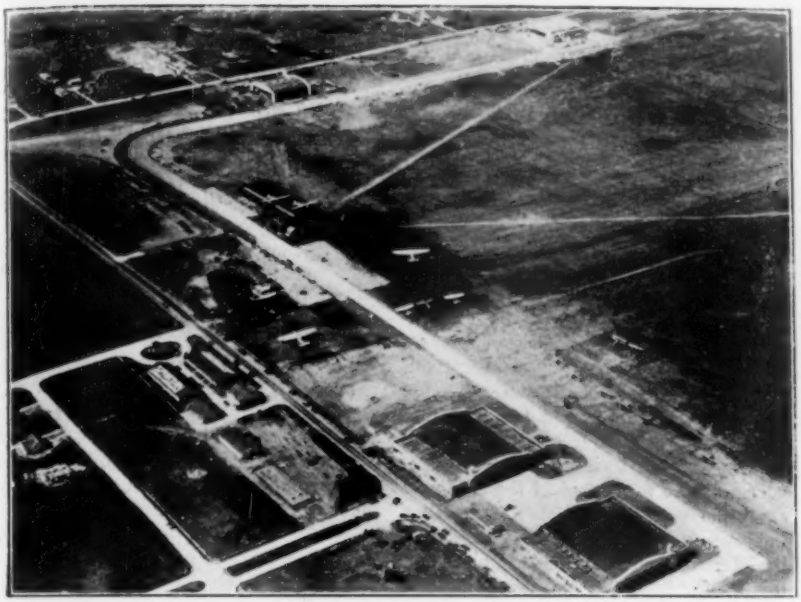
Seven Years' Progress of Planning Movement Inaugurated by Chamber of Commerce

Seven years ago the City Plan Commission was established in Tulsa by city ordinance. It followed a study by a committee of the Chamber of Commerce and a recommendation by the Board of Directors of that group to the City Commission. A tentative major street plan was prepared by the Commission, which also prepared and secured adoption of the zoning ordinance which has controlled the use of property for the past five years. It did work on railroad and terminal plans which had considerable effect on the final plans for Tulsa's new union station (recently begun and to cost nearly four millions) and on the elevated streets project. It also prepared a tentative outer boulevard and parking plan.

In the early spring of 1928, the City Plan Commission, with the authorization of the City Commission, and with funds provided by the city, engaged the services of Harland Bartholomew and Associates, of St. Louis, as city plan consultants to take over the plans prepared at that time and revise them, and prepare a comprehensive city plan. Following a long study of the situation by the Bartholomew group, the major street plan was drawn up in definite form and accepted by the City Commission. Assurance of its ultimate consummation was shown by the voters when they accepted it as one of fourteen items in the bond election.

Significance of the Recent Bond Issue Election

Including fourteen widely separated items as it did, and coming at a time when civic consciousness might well be said to be most nearly dormant, on account of the recent stock crash, the successful bond election is a landmark in American municipal history. It signifies a civic agressiveness that is born of pride in past accomplishments. It represents a list of civic improvements so well chosen and organized that defeat could hardly have come. Here is a summary of the fourteen propositions, all of which were approved by the voters in February.



TULSA'S MUNICIPAL AIRPORT
This was recently purchased by the city through a $650,000 item in the $6,230,000 bond issue

No. 1 is for major street improvements, and includes the preliminary steps in the final major street plan. Total, $1,150,000.

No. 2 provides for grade separations and approaches, and includes three underpasses, one subway, a viaduct, and improvements and street widening adjacent to another viaduct, and approaches and contingencies to all these. Total, $850,000.

No. 3 provides for the city's part in widening and improvement of the present bridge across the Arkansas River at Tulsa, and for its share of cost of a second bridge, to connect Tulsa's Riverside Drive residential district with the Carbondale and Red Fork districts below West Tulsa on the other side of the river. (It is possible that a rerouting of one or two arterial highways will follow the erection of the new bridge, and that much inter-state and inter-county traffic will thus be diverted from the downtown section to less congested outlying thoroughfares.) Total, $725,000.

No. 4 provides for extension of sanitary sewers and for erection of disposal plants in newly annexed areas. Tulsa annexed over seven square miles of metropolitan area during the last year, and these additions have necessitated this item. Total, $300,000.

No. 5 provides for storm sewers in seventeen outlying points in the city, and in many cases serves areas mentioned in Proposition No. 4. Total, $1,000,000.

No. 6 provides for improvement of existing playgrounds and parks, including flood elimination in Mohawk Park (site of emergency reservoir in Tulsa's three-million-dollar Spavinaw water system); construction of a zoological building, improvements in the park, and other parks and playgrounds acquisitions and improvements. Total, $500,000.

No. 7 provides for the purchase by the city of the Tulsa municipal airport. Total, $650,000.

The port includes a total of 420 acres, and has been known as a municipal port since it was hurriedly made ready for the National Air Tour when it visited Tulsa in July, 1928. Since that time, the port has grown in size, and has come to be an all-weather field. It is equipped with 43 boundary and approach lights, and three 30-million-candle-power floodlights, which make the center of the field a veritable pool of illumination at night.

It was not, however, until the passage of the bond issue that the port became in reality "municipal." Until February 4, the port was managed by a group of underwriters who guaranteed maintenance of the field as a municipal field. If Proposition No. 7 had been rejected from the bond list, it was probable that the port would have been turned to a private corporation, with much less satisfactory results. Since it was put on a sound financial basis, a few months after its inception, it has shown an increasing profit, and will be maintained by the city on that basis.

The total investment by the underwriters is a little over $360,000. Adding items of interest, bills payable, insurance due, taxes, operating expenses for 1929, and cost of a new administration building yet to be erected and provision for further ground and runway improvements, the total cost runs to a round figure of $650,000. That is the sum voted on the bonds.

Tulsa taxpayers not only bought a good security, but they also purchased what is literally the busiest airport in the world. During the month of February, 1930, the port handled nearly twice the total number of persons flying to and from the three leading airports of Europe—LeBourget, in Paris; Croydon in London; and Tempelhofer in Berlin.

No. 8 and No. 9 are for a street traffic signal system and additional fire-stations and fire-alarm systems. The fire commissioners expect to bring Tulsa from fire insurance class 4 to class 3 through installation of this equipment, with a subsequent reduction in fire insurance rates. The total for these two items is $490,000.

No. 10 is for purchase of a municipal hospital and erection of another in the negro district. The total is $210,000.

No. 11 is for repairs and redecoration of Convention Hall, which is the setting for the annual presentation of Grand Opera by the Chicago Civic Opera Co. The operas Carmen and Lucia di Lammermoor are being presented this year under the sponsorship of the Hyechka Club. The total is $60,000.

A SCENE IN MOHAWK PARK
Nearly half a million of the big bond issue will be spent on this area

No. 12 is for sub-police stations and for a municipal building in the negro district. Total, $170,000.

No. 13 and No. 14 are for equipment of branch libraries in outlying districts, and for construction of a municipal juvenile detention home, in one or more units. The total for these is $125,000.

Engineering and Highway Data

Page 13 of this issue of THE AMERICAN CITY is devoted to a series of short signed items on street construction and maintenance and other engineering activities from municipal officials in many parts of the country.

Curing Unfair Special Assessments

Suggestions for Ridding Cities of the Glaring Discriminations That Too Often Mar an Otherwise Equitable Method of Financing Public Improvements—From a Report of a Special Study Made Under the Auspices of The New York State Tax Commission and Columbia University

UNDER an arrangement with four leading universities the New York State Tax Commission is now sponsoring various special studies in taxation, by means of fellowships financed by the Commission. The first of a series of reports on these studies has just been published, under the title, "Special Assessment Procedure," prepared by Arthur Rowland Burnstan, Ph.D., New York State Fellow in Taxation at Columbia University. It constitutes Special Report No. 1 of the State Tax Commission and is described in the sub-title as "a critical study of the methods and practices employed in improvement finance in 21 New York cities." Of its 272 pages, 89 are devoted to ten chapters of analysis and discussion of the special-assessment situation in New York State and generally, culminating in a summary of conclusions and recommendations, which is given herewith.

A special assessment is defined in the report as a levy to defray the cost of a particular public improvement, and is stated to be theoretically in proportion to, but not in excess of, the resulting benefit accruing to the property against which it is levied. As is well known, special assessments constitute a widely prevalent method of financing local improvements in this country. They possess strong advantages, are handled in a great variety of ways, present many difficulties in specific application, and, as stated in the Commission's foreword, "constitute a subject about which most people have very definite conclusions but about which there has been a surprising lack of actual available information."

The conclusions and recommendations, which are for the information and guidance of cities interested, rather than as the basis of compulsory state law, are as follows:

1. General Conclusion

The first and general conclusion is that the special assessment systems in the 21 largest New York cities do not operate equitably and should be subjected to change. They are inconsistent in practice, often producing glaring cases of discrimination, and are sometimes used to finance projects that involve current activities of a general character when theoretically they can be properly applied only to public improvements involving a traceable increment to specific property. When special assessments are levied on a fixed-rate basis to provide some general protective improvement, they are being improperly used. Such activities should be financed with funds raised on a faculty basis.* In some cases where such assessments are levied, the benefit does accrue to the property but the economic condition of the occupants is such that it prevents the realization of these benefits. There has been no organized effort on the part of the cities themselves to remedy this situation, probably because of the lack of information on the subject rather than because of an absence of volition. If, therefore, any relief is to be obtained, it is to be looked for through some action, either cooperative or direct, on the part of the state government.

2. Privilege of Initiation

The initiation of all projects should properly fall to the officials in charge of the city's construction and improvement work. If a group of citizens desire some particular improvement, they should be given an opportunity to express their opinion through a petition, and where such a petition embodies the signature of fifty per cent of the affected property holders, the governing body should be required to present the proposal for regular consideration. In no case, however, should a property owner's petition be absolutely binding, regardless of the percentage of signers. There are two reasons for this: first, it might cause a deflection from a definitely-ordered program; and, second, it would permit a group of property owners to obtain an undue share of neighborhood improvements. These reasons apply only where a portion of the improvement cost is paid from general city funds. In the first instance the forced application of general funds to an unlooked-for improvement would cause their withdrawal from some other project; in the latter case a small group would benefit at the expense of the entire city.

3. Content and Means of Notification

A proper statute covering the special assessment levies must include a provision for adequate notice, and it is desirable that adequate notice in this connection be specifically defined. There are three types of notice in common use today: (1) publication, in a local newspaper; (2) posting, at some spot adjacent to the proposed improvement; and (3) personal notification, usually through the mails. Although no one of these is adequate, the best method is that of mailing to the last-known address of the affected property owner. In a small percentage of cases these notices will not establish contact, but publication in a local newspaper may remedy this deficiency. Posting is the least effective, as it notifies only those owners who happen to have direct contact with the neighborhood wherein their property lies. A notice, while it should contain a complete description of the improvement and define all boundaries, should be concise in form and readily understandable. A notice stated in highly technical terms may be thoroughly descriptive to an engineer and still meaningless to the average property owner. A simple statement of the contemplated improvement with a complete showing of the properties to be affected may be termed an adequate form of notice. This announcement should be mailed to the last-known address of each interested property owner, and supplemented with newspaper publication and posting. If such a notification is made compulsory before any improvement can be constructed, it will fill all reasonable requirements and, from an examination of past cases, it is even safe to assume that the courts would consider this as sufficient, even where contact had failed.

4. Necessity for Adequate Hearing

The notice is merely the instrument whereby a property owner is informed of a governmental activity that will affect him or his property. It gives him an opportunity to prepare a protest if he feels that this activity is not justified, but the character of the hearing wherein he is permitted to voice his protest is even more important. The first hearing concerns the advisability of the entire project. At this hearing there should be present all maps, estimates of cost and other similar data that might help to clarify to the property owner every phase of the contemplated improvement. It is also essential that the

* That is, according to the principle of ability to pay.

city officers entrusted with the preparation of such data should be present to explain and describe how their conclusions were reached, because in many cases objections have been withdrawn when obstructing property holders have become fully acquainted with the existing facts. If any alterations in the plans are proposed or a question of propriety should arise, there should be a subsequent hearing for the consideration of such changes. When the tentative spread of assessment has been made, another hearing should be held to permit the affected taxpayers to view and compare the various assessments, at which time the assessor should explain his method of arriving at the different amounts, where a benefit variable is involved. In cases where the original assessment remained unchanged, this hearing would suffice. If any alterations were made, the entire roll should be presented in its revised form at a later hearing. In addition to these regular hearings, an interested property holder should be given the right to have a review of the assessment, any time before the roll is certified for collection.

The city would benefit if a system of hearings such as that oulined above were adhered to, because the well-informed property owner is less likely to raise objections to a proposed improvement, and the city would therefore save the costs incidental to delay.

5. The Selection of a Proper Measure of Benefit

The selection of a proper base to use as a measure of benefit is one of the most difficult and one of the most important steps in special assessment procedure. There are several measures now employed, such as "foot-frontage," area, proximity, assessed value, etc., but there is almost no instance where the definite amount of benefit can be determined by one of these. Usually a combination of circumstances controls the situation and it is necessary to state in a special assessment act or statute some compulsory considerations in the determination of benefit; otherwise the taxpayer has no guarantee that a just and unbiased policy will be pursued. The best method would be to specify several benefit measures that must be considered when the division of the total assessment takes place, then, if one of these does not apply in a particular case, it can be eliminated. Such a procedure would force the administrating officer or board to apply counterbalancing measures. For example, the popular "front-foot" rule would undoubtedly cause many inequalities if applied alone, but if area, value, etc., are applied as modifying factors, the result will be more accurate and more just.

The determination of benefit is difficult because the same indices of benefit never apply equally to two projects; even improvements of the same character do not produce the same results. The benefit to a business district from a given type of construction can rarely be compared to that resulting in a residential district. Each change of location brings changes in value, and the effect of an improvement will therefore vary in degree. In fact, although the determination of benefit is so complex that a careful consideration of the contributing factors is the only means of producing proper results, the system of measuring benefit must nevertheless be kept flexible, and must permit certain discretionary powers to come into play.

6. A Planning Commission and a Master City Plan

One of the best guarantees that a city can have of a just and orderly improvement program, is a master city plan. This provision has no place in a special assessment law but is rather an outside contributing factor. A city planning commission with a definite plan is especially helpful in the development of improvements that are to be built in successive stages. For example, in cases of flood control, sewers or any unusual types of work, the influence of a city plan is not felt so greatly as it is in street improvements, where a plan that is to be closely followed can be formulated far in advance. This definite knowledge of the city's attitude toward certain streets or districts permits the owner of property to prepare in advance for such improvements as will occur. Moreover, their cost may be discounted, thus preventing sudden and violent fluctuations in the real estate market. An added advantage of the city plan is the fact that it is sometimes possible to justify, as a part of a whole, an improvement that would not stand individually.

7. The Effect of Zoning

Zoning comes more properly under the city plan, and its relation to the city's special assessments should not come within the improvement laws. While it links up with the local improvements just as definitely as the general plan does, the establishment of an interrelation between the three produces a more workable situation. A zoning ordinance affects the choice of types of material to be used in various betterments. For example: the wear incidental to heavy trucking, in a business or wholesale district, would require a type of pavement construction that would be wasteful in a residential section; the sewage disposal system necessary to a large, tall apartment district would require construction and material in excess of that demanded by a zone of single-family dwellings. This determination of type of composition, and the relationship of the improvement to the zones and the general city plan, may all be brought to light in a preliminary survey. Where the selection of the magnitude and class of improvement does not conform to the height area and use zones, two conditions result: either the benefit accruing to the adjacent property is not commensurate with the costs of building; or the amplitude of the improvement is not adequate to serve the community.

8. A Preliminary Survey

A provision for an advance study, involving an economic and a physical survey and a coordination of the two, should be required before any improvement project is definitely ordered. Such a study, if carefully made, would bring to light all the small defects that ordinarily arise to delay the progress of an improvement. It would also answer the question as to the need of the community for the improvement, and would show whether the owners of the benefited property could bear their proportionate share. A topographical study would reveal any unusual cost that might be involved because of peculiar conditions of the terrain and would often halt an improvement where the cost would be out of proportion to the accruing benefit. Many cities have, in the past, become involved in construction of a costly nature that could have been avoided if proper consideration had been given before the improvement was ordered. While there is no way of insuring the proper use of this information after it has been gathered, if its accumulation is made compulsory it will at least assure the taxpayers of a complete advance knowledge of the situation. If they feel that the municipal officers in their procedure are disregarding the facts, they will have certain checks at their disposal. A compulsory survey of this nature should therefore be required in an acceptable improvement statute.

9. The Individual Project Method of Financing

Three plans of special assessment financing now in general use have been discussed earlier in this study. The first of these, which permitted the use of special assessment bonds that were not general obligations of the cities of issue, was shown to be too costly to be satisfactory, because the charges for marketing the securities sometimes become a major portion of the total improvement costs. This type of security was sometimes forced upon cities where guaranteed bonds would have accelerated an already fast-approaching debt limit. The second type of financing referred to was the "revolving fund" whereby all im-

provements are paid for from a single fund. This system has many possible abuses attached to it. It permits irregularities to exist and accumulate without detection because the actual levy of the assessment is often postponed until long after the completion of the improvement. Moreover, it is not self-supporting, because the original funds raised at its inception must come either from an issue of bonds or from the general tax funds, and large amounts of cash may be purposely retained in order to place low-return deposits with favored banks. The fourth objection is that it becomes a political tool permitting the suspension of all assessments in an election year and causing a corresponding excess the following year.

The third type of financing, and the one here recommended, is that type which forces every project to be handled separately. Under this system, bonds are guaranteed by the city of issue, but the source of their retirement is special assessments levied because of the particular project against which these bonds were issued. It does not seem proper that such bonds should be included in the regular debt limit of the city, since the funds for their retirement come from a specific source. In case of the default of these specific sources—and the percentage of such default is extremely small—the city merely acts as a guarantor. Another advantage is that under this latter type of financing the assessment is levied immediately upon the completion of the improvement, so that if there are any irregularities present they are instantly detectable.

10. General and Specific Limitations

If the guaranteed type of special assessment bond which does not come under the general debt limitation is used, it becomes necessary to fix some other check on the issue of these securities. A study of the amount required for the advancement of ordinary improvements will be necessary before a percentage limit can be ascertained. A definite limit will cause the administering officials to use greater care in the selection of improvements for immediate attention. An indiscriminate program might find them with no funds to carry on essential work, because of the fact that less urgent projects had been permitted to proceed.

Another type of limitation designed to protect the property owner from excessive levies is the limit placed on individual assessments. In the past, many instances have arisen where the amount of the special assessments has actually exceeded the assessed valuation of the property. New York City has a provision that does not permit an assessment to exceed 50 per cent of the assessed valuation, at the time of the improvement, with other similar limits placed at varying percentages for a given period of years. Such limits are proper if they be applied in some form to prevent too rapid improvement development with resulting assessments of a confiscatory nature.

11. Designation of Type of Material

The designation of the type of material to be used in improvement construction should be the duty of the city's engineering staff. When a piece of work is officially introduced, the plans and specifications should definitely name the class and type of construction material, especially when the improvement will be subjected to excessive wear. It has been pointed out that to allow the affected taxpayers to make this selection might terminate in an evasion of proper expense through the selection of inferior and cheaper material. Specifications of this kind are especially necessary in paving construction where the use of an improper surfacing material may require premature repairing and repaving. If such repairs are charged against general city funds, the group originally benefited is evading part of the cost at the expense of the entire city.

The other reasons for permitting the engineering staff to select the material are their particular qualification in this field of work and also the fact that the city employs these experts for just such service. Their intimate knowledge of conditions enables them to judge accurately, where the untrained property owner would be at a loss.

12. Difficulties Arising from a State Law

If the recommendations summarized above were included in a compulsory legislative act, the result might be detrimental to some cities, and individuals owning property liable to benefit levies in these cities might also be exposed to inequitable treatment. Where the cities are concerned, there might be instances of major improvements in a state of partial completion, and the introduction of a change of operation would produce a situation involving great additional cost. Likewise, in the case of individuals who have paid for the first part of a major improvement, altering the method of procedure would produce a situation where one owner is likely to benefit at another's expense. A provision allowing the city reasonable time in which to comply with the law might overcome these objections. Another obstacle lies in the fact that there may be cities where conditions are so peculiarly local that a state law can never apply. New York City, with conditions that are not comparable with any other city of the state, is the best example of this situation.

13. An Optional Act

A permissive act which the cities of the state may use as a model for their local laws, or adopt in full where local conditions permit, is a more desirable solution than some form of compulsion by the state. It is recommended that this law include all of the provisions suggested in this study which have been found to apply to the general special-assessment situation of the state, and the people can bring pressure to bear upon their city officials to adopt those portions of the law that are applicable in their particular case. In this manner the state can give the cities the opportunity to benefit by a comparison of various methods, and still not violate its policy of non-intervention in local affairs.

14. The Collection of Delinquent Assessments

It is assumed that an equitable system of special assessment procedure would decrease materially the number of delinquent payments. There will undoubtedly always remain a certain portion of the levies that will not be paid within the specified time, but if these levies are well within the selling value of the property, the city need not lose. The special assessment lien is usually combined with the general property tax lien, and collection of delinquencies is made as a unit. The improvement in delinquent collection methods, therefore, depends largely upon the devising of an efficient system for the sale of property to cover delinquent taxes. Such a measure, while very desirable, does not fall primarily under a special assessment law.

15. Criteria for Future Legislation

In conclusion, there may be suggested certain criteria for the framing of legislation on special assessments, to be followed in the event of any state action. The necessity for state action occurs only in cases of unsatisfactory local situations which are not likely to improve, but if an individual city can formulate a law fitting its peculiar needs and complying with the general standards, state action may be obviated. Only those characteristics which are common to all special assessments should be dealt with by legislative action. If care is not used in framing the law so that it shall apply to general situations only, the result will be confusion and absence of uniformity. There can be a proper application of special assessment financing only where the benefit is equal to or in excess of the cost. The careful adherence to this principle in dealing with special assessments will cause the elimination of injustice and will conduce to an uninterrupted continuance of benefit levies.

AIRPORTS AND AVIATION

A Monthly Department on Aeronautical Activities of Municipal Interest

Conducted by ARCHIBALD BLACK, President, Black & Bigelow, Inc., Air Transport Engineers

Cooperative Committee on Airport Zoning Organized

AS a result of many requests received from city officials, airport managers and engineers and others interested in the development of adequate airports, for information and suggestions as to suitable airport zoning ordinances to insure protection to the flying public against hazards that might be developed in the vicinity of airports, a cooperative committee on airport zoning has been formed by the Aeronautics Branch of the Department of Commerce to study the matter, prepare suggested ordinances and report its findings and recommendations.

In making this announcement, on March 19, Clarence M. Young, Assistant Secretary of Commerce for Aeronautics, said:

"Many cities in the United States have recognized the fact that they must provide themselves with suitable air terminals if they are to have places in the great air transportation system that is rapidly spreading over the country, with the result that a large number of excellent airports now are being constructed and projected.

"It is important that suitable zoning ordinances be established to protect these air harbors against developments tending to jeopardize the safety of operations and otherwise reduce the effectiveness of the airport.

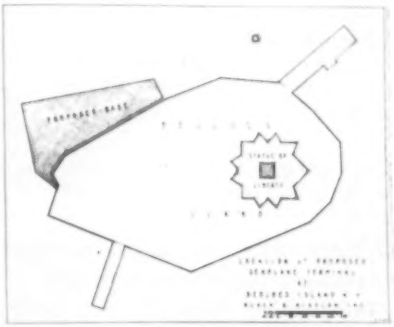
"In an effort to supply the information requested on suggested ordinances, which may serve as a guide for zoning commissions and other civic bodies, the Aeronautics Branch extended invitations to several national organizations interested in such matters to serve on the committee, and these organizations have designated representatives to this end.

The personnel of the committee was announced by Mr. Young as follows: Harry H. Blee, Director of Aeronautics Development, Aeronautics Branch, Department of Commerce, Chairman; Edward M. Bassett, Advisory Committee on City Planning and Zoning, Department of Commerce; W. M. Bishop, Air Transport Section, Aeronautical Chamber of Commerce; W. Irving Bullard, United States Chamber of Commerce; George B. Ford, Planning Foundation of America; George B. Logan, Committee on Aeronautical Law, American Bar Association; A. Pendleton Taliaferro, Jr., Airport Section, Aeronautics Branch, Department of Commerce, secretary of the committee; and James S. Taylor, Division of Building and Housing, Bureau of Standards, Department of Commerce.

New York Seaplane Base

AFTER a number of years of experimentation and discussion, the War Department has finally taken action in the matter of the New York Seaplane Base. On February 18 it called for bids on the leasing of certain lands under the water adjacent to Bedloe's Island, to be used as a base for seaplanes. The accompanying sketch indicates the extent of the property in question and suggests the probability that a wide variety of plans and disparity in terms may be expected when the bids are opened by the office of the Quartermaster General on March 25. The lease is to be granted for a term of five years and each bidder is instructed to submit a comprehensive statement showing improvements and facilities that he will install together with the estimated cost thereof. No option of renewal is mentioned and the lessee may be required under the terms of the contract to remove his improvements from the site on or before the date of expiration of the lease, at the pleasure of the War Department.

The area in question is undoubtedly too small to serve as a terminal and will be suitable only as a point of embarkation and debarkation for passengers, mails and merchandise. While such an arrangement can hardly be described as ideal, it is nevertheless encouraging to think that one may look forward to such a development at a point not over ten minutes from Wall Street by speed boat. The question of seaplane base facilities is arising in many large cities and will undoubtedly become more important as the seaplane becomes more of a factor in air transportation.

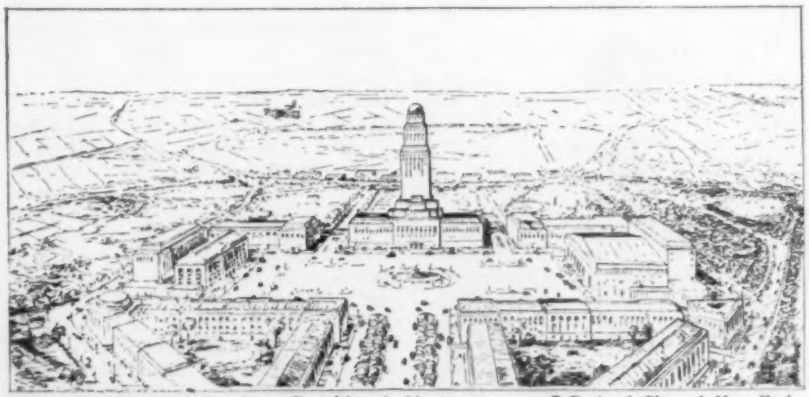


Ohio Requires Air Marking

A STORY carried by the *United States Daily* on February 12 reports that all municipalities in the state of Ohio are now required to have air markers. This law became effective June 25, 1929, and already 398 towns have been marked with 547 markers, according to a report made by the Chief of the Bureau of Aeronautics, John M. Vorys. In addition to markers already in place, 78 towns are completing other markers.

Combined Civic Center and Airport Proposed by New York Regional Plan

LATE in February last, the Regional Plan of New York and Its Environs presented to the public a plan for a civic center, including an airport in the borough of Queens. This civic center and airport would be located on property which is at present not developed. It would bring the airport within fifteen minutes of Manhattan, the site being in Juniper Valley between Maspeth and Middle Village, and is one of the sites recommended by the Department of Commerce Fact Finding Committee a few years ago. The proposal of the Regional Planning Committee has encountered considerable opposition on the part of President Harvey of the borough of Queens. Mr. Harvey attacked the proposal on the ground that the land



Arthur C. Holden and Associates, Consulting Architects *© Regional Plan of New York*

A CIVIC CENTER FOR A FLYING AGE

This civic center for the borough of Queens, combined with a large airport which will serve as an air terminal for the entire city, is proposed by the Regional Plan of New York

is at present swampland, involving considerable expense to develop, and he also objected to the proposal to locate an airport in the proximity of the proposed court house and borough hall.

Chopping a Flying Boat Out of the Ice

THE sturdiness of modern flying boats may be judged from a recent experience of the owner of an Eastman flying boat, built by a division of the Detroit Aircraft Corporation. A few days prior to a cold spell, earlier in the winter, an inspector from the Aeronautics Branch of the Department of Commerce and James Eastman, designer of the flying boat, took off the water in the Detroit River to conduct tests required by the Department prior to issuing an approved type certificate. As it was late in the afternoon, some of the tests were postponed until the following day. In the meantime, cold weather set in and Mr. Eastman found his boat frozen solidly into the ice. Being anxious to get the airplane back to the factory now that the tests had to be postponed, Mr. Eastman and the inspector chopped it free and dragged it up on the surface of the ice. Using the hull as a ski to slide along the surface, the flying boat was taken off the ice and flown back to the factory, where it landed in about three feet of snow. Upon examination after this unique experience, it was found to be in first-class condition.

Insurance Company Launches Aviation Safety Campaign

THE United States Aviation Underwriters, one of the leading aviation insurance groups, recently launched a loss-prevention campaign addressed to pilots and operators in the industry. Several news releases have been issued to the personnel of the aircraft industry and additional material is being issued from time to time. David C. Beebe, President of the company, is organizing an Aviation Safety Council for the purpose of encouraging greater safety in flying and more care in the elimination of fire hazards at airports. The great development of the past few years makes all the more necessary the stressing of safety in operations, and insurance companies are naturally the first to become interested. Aviation insurance is already expensive and its cost can be reduced only by increased care in operation. This campaign should have universal support both from within the aircraft industry and from those outside. Increased safety benefits all these, whether they be passengers, operators, or persons engaged in some other division of aeronautics.

"The third element in the system, as described in the *Technical News Bulletin*, consists of a beam of 60,000 to 100,000 kilocycles directed at a small angle above the horizon, together with a simple receiving apparatus with a visual indicator on the airplane. By maneuvering the airplane so as to keep the deflection of the indicator at a fixed point, the pilot follows a gliding path down to the source of the beam. In one experiment the landing path began at a distance of three miles from the transmitter. The height of the path of the airplane above the ground at that point was 2,000 feet. As the airplane approached the transmitter, the slope of the path decreased so as to facilitate an easy landing.

"The Bureau of Standards is continuing its experiments, expecting that its goal will not be reached before two years. Those conducting the work are not satisfied that they have found the final answer; they are convinced, however, that it will be possible in practice to give pilots simultaneous positions in three dimensions, even though the means employed are not precisely the same as those now being used."

THE EASTMAN FLYING BOAT BEING CHOPPED FROM THE ICE IN THE DETROIT RIVER

It was towed on solid ice to the point from where it was flown away to be landed on the snow on Grosse Ile Airport at the end of its trip

Air, Rail and Road Mileage

A RECENT news release of the Boeing Companies makes an interesting comparison between distances across the continent by air, rail and automobile. The mail and passenger airplanes flying between San Francisco and Chicago cover a route 317 miles shorter than the railroad and 451 miles less than the transcontinental automobile highway. The air mail cuts 301 miles from the rail distance between Los Angeles and Seattle, making the flight in 12 hours elapsed time as against the train time of 40 hours.

Municipal Airport Liability

AMONG the many problems discussed at the recent New York State Airport Conference, held at Elmira, none was of more interest to municipal airport owners than that of airport liability. It was stated that legislative steps are being taken to reduce airport liability to cases of proven negligence only; and it was urged that the various state governments follow the lead of several of the states in which there are the greatest air transport activities, in endorsing the Department of Commerce Regulations without original additions which might greatly complicate the situation. The Department of Commerce is evidently attempting to insure, as far as possible, the fair treatment of both the operators and the general public without placing too great a burden upon the former.

Few municipal airport operators are properly aware at the present time of the complete protection through insurance which they are able to get.

No municipality should be penalized for its farsightedness in establishing airport facilities, by being held liable for accidents properly chargeable against individuals or corporations using the airport. On the other hand, the innocent third party should not be deprived of damages for injuries for which he suffers. Heretofore the question of liability has been largely an open one, resulting in confusion to operators of aircraft and airports. The sooner this uncertainty is removed by the legislature and the courts with justice to all concerned, the better.

An Air Travel Directory

AIR Travel Guide, a monthly magazine published in convenient pocket form by the H. S. Crocker Co., of San Francisco, price 35 cents, will be found very convenient by those who have occasional contact with air transport operations, whether as users of the air mail or as passengers. *Air Travel Guide* very much resembles the consolidated railroad time tables with which we are all familar, including as it does complete time tables of all the air transport systems in the United States. The extent of the growth of American lines may be judged from the fact that the March, 1930, issue of this little magazine contains 123 separate timetables.

Buffalo Air Police

THE city of Buffalo, N. Y., has joined the ranks of those municipalities including flying activities within the scope of the police force. Buffalo's air squad, which has just been added by J. A. Roche, Police Commissioner, includes an inspector and seven patrolmen. All these men are volunteers who are donating their services for the general well-being of the community. They hold air transport licenses and are experienced pilots, being engaged in aviation. Leo Chase, airport manager for the local Curtiss Flying Service, is the inspector, and his aerial patrolmen are experienced test pilots, instructors and officials of airplane companies.

THE TAXPAYER'S DOLLAR

A Monthly Department of Budgeting, Assessment, Taxation, Accounting and Other Phases of Municipal Finance
Conducted by A. E. BUCK, National Institute of Public Administration, New York

The Taxpayers Come to Chicago's Rescue—$74,000,000 Raised by Citizens' Committee

SINCE our comments of last month on the Chicago situation, a most striking thing has happened—a thing which is perhaps singular in American municipal history. The taxpayers, through an organized committee, have come to the rescue of the depleted treasuries of the city, county, school, and other local governments of the Chicago area.

It became apparent shortly after the middle of February that the administration at the City Hall would be unable to dispose of any anticipation warrants against the 1930 taxes. This was rather depressing to "Big Bill" and his crowd. Charles S. Peterson, the City Treasurer, had scraped together from license fees and automobile taxes about $1,850,000, which he paid out on back salaries on February 15. But this did not help much; a large amount of salaries still remained in arrears which had been accumulating since the middle of December. Employees became more and more insistent. Cook County officials proposed to pay the county employees in tax anticipation warrants in lieu of cash. The bankers declared that these warrants would have to be discounted 10 per cent. Silas H. Strawn, of the citizens' committee, said that such procedure would decrease the market value of the warrants.

Thereupon Mr. Strawn invited fifty of the leading business men of the city to a conference. At this conference it was decided to raise $74,000,000, the amount estimated to be required to finance the local governments until July 1. It was also proposed to create the "Cook County Taxpayers' Warrant Trust" to handle the funds. This trust, it was decided, would begin operation as soon as $50,000,000 had been subscribed to the fund. The Strawn citizens' committee also indicated that it would have a controlling voice in saying how much should be given to each government.

After a two-day campaign on the part of the Strawn committee, only $6,000,000 had been raised toward the fund. This looked rather discouraging. The committee then prevailed on Philip R. Clarke, President of the Central Trust Company of Illinois, to organize a "drive" along the lines of the Liberty Loan drives he had so successfully conducted during the World War. Mr. Clarke got his forces organized and started the drive on Monday morning, February 24. Tentative plans were laid to complete the drive during that week. Subscriptions were to be payable from time to time on call, starting with about 10 per cent on March 1.

Subscribers to the fund received "public subscription certificates for shares of beneficial interest in unlimited principal amount" from the Cook County Taxpayers' Warrant Trust. The Trust issued a circular saying that "dividends are payable pro rata from time to time on order of the managing committee either out of capital or surplus of the Trust." An interesting feature of the plan was the option given to the Trust of calling on holders of its certificates to tender their tax bills, which might be pooled by the Trust and paid by warrants held by it. The Chicago Stock Exchange gave its endorsement to the participation certificates and they were listed by the Board of Trade.

The "rescue drive" did not succeed as rapidly as Mr. Clarke had anticipated. The end of the week found the Trust still about $15,000,000 short of the goal, but it was decided that it should begin to function anyway. The total of $74,000,000 was subscribed almost a week later.

Contacts were established with the City Hall through L. E. Myers, a school trustee. He told "Big Bill" and his associates that the Strawn committee offered the only hope for funds. This was a bitter pill for Mayor Thompson to swallow. He first made grimaces and gestures and then grew silent, if not somewhat sullen, much to everyone's surprise. The press of the country commented on this psychological change in the person who had previously needed only to have King George mentioned to become a veritable loud speaker. "Forsaking the role of Stentor for that of the Sphinx," said the *New York Times* editorially, "and a melancholy Sphinx at that, Mayor Thompson of Chicago presents an enigma not only to his own city but to an admiring nation." But, concluded the *Times*, "The regrettable likelihood is that the silence is only temporary." The Mayor stalled for two or three days in signing the ordinance permitting 6 per cent on the tax anticipation warrants, a stipulation of the Strawn committee. But he finally gave in and signed the document. However, he and his advisers

Courtesy of New York Evening Post

refused to admit that they had yielded to one condition set up by the committee, namely, that citizens must supersede public officials in dictating the expenditure of the funds.

A pay day was set for March 4. More than 40,000 city employees, together with those of the other local governments, received checks for their back salaries up to February 15. Much jubilation was reported.

New York City Budget Reopened to Provide Salary Increases for Policemen and Firemen

AFTER the New York City budget for 1930, or the segregated appropriation bill, to be more exact, had been approved in December last, it was discovered that no provisions had been made for certain increases in the salaries of policemen and firemen. It was estimated that about $5,000,000 was required for this purpose. The city administration decided that the only way this amount could be provided was to reopen the budget. Only once or twice in the city's history had such a course of action been taken.

A bill was introduced in the State Legislature authorizing the city government to reopen the budget. After some discussion of a political character, the bill was passed and approved by Governor Roosevelt. Thereupon the Board of Estimate and Apportionment and the Board of Aldermen went through the motions of reopening the budget during the latter part of February. There was warm discussion, particularly in the Board of Aldermen. The Citizens' Union spoke of "budget manipulation" in its publication. Final action was taken on the reopened budget on February 27, and an amount not to exceed $5,000,000 was inserted. This brings the total budget for 1930 up to $569,769,828.23.

On March 4, the Board of Aldermen at a special meeting fixed the basic tax rate of the city government at $2.53 on each $100. With the extra assessments, the borough rates were as follows: Manhattan, $2.70; Bronx, $2.62; Brooklyn, $2.65; Queens, $2.68; and Richmond, $2.71. The 1929 rates for the boroughs in the order just named were $2.68, $2.62, $2.66, $2.66 and $2.66. The basic rate for 1930 is levied against an assessed valuation of $18,583,987,402 on the real and personal property of the city. The miscellaneous receipts which go to reduce taxation for 1930 are estimated at $101,220,229.

Important Suggestions for Increasing the Salability of Municipal Bonds

THE financial plight of Chicago and the unfortunate condition of many of the cities of Florida have recently caused investors to look somewhat askance at municipal bonds. It is becoming increasingly more difficult to resell such bonds. This means lower prices for these securities, which in turn has a marked effect on municipal credit. Then if a small percentage of the municipalities fail to meet promptly the principal and interest payments on their outstanding bonds, the situation becomes even more serious from the investor's standpoint. He will no longer regard municipal bonds as the safest type of investment, one which can be put in a lock-box and forgotten.

What is to be done about this situation? Douglas Campbell, manager of the municipal bond division of the Detroit Security Trust Co., writing in the February issue of *The Comptroller*, offers some valuable comments on the important features of municipal bonds. He says in part:

"Many fiscal officers already know the features which bond houses consider desirable in a municipal bond issue. The presence of these features influences a good bid, and their absence leads to a lower bid. For example, the standard denomination of bonds is $1,000 and denominations either larger or smaller are less desirable. When absolutely necessary that odd bonds be issued, they should, where possible, be multiples of $100 and be included in the earliest maturity. The place of payment is a matter often overlooked. Investors prefer bonds payable at a bank or trust company in a financial center. This facilitates prompt collection of maturing bonds or coupons. Many municipalities specify when advertising bonds for sale that the issue shall be payable at a bank or trust company to be named by the purchaser. This is a wise provision, especially in cases where the bonds are salable in different parts of the country, for it permits the bidder from a particular section to have the bonds payable in the financial center of his locality, where it will be most convenient for his customers. New York payment is almost universally acceptable and is particularly desirable on bonds which are legal investments for savings banks in the eastern states.

"Many buyers of bonds prefer those which may be registered as to principal, or both principal and interest. This is especially true in the East, and municipalities will be wise to provide for registration if the purchaser wishes.

"One of the most important points considered by dealers bidding for municipal bonds is whether the bonds may be reoffered for sale immediately after purchase. Investment houses prefer to be sure of the legality of bonds before selling them; hence, if the municipality has obtained the approving opinion of a recognized bond attorney before the sale, the successful bidder can immediately start to sell the issue. For this reason he can also pay a higher price, as it is not necessary to allow for possible weakening of the market while waiting for the legality to be established. It is also desirable to have bonds prepared by experienced bond printers and on proper paper, which will stand up under frequent handling and wear and tear. If the printing is handled by the purchaser, whether at his or the municipalities' expense, it is very apt to be done properly, as the dealer is anxious to have the bonds marketable and desirable in every way.

"Serial maturities are generally considered better financing than straight maturities which require sinking-funds. If serial, the bonds should fall due in round amounts when possible—for example, in multiples of $5,000 or $10,000, as these are most attractive to the average buyer of municipal bonds. In many states the laws prescribe when bonds must mature, depending on the purpose of issue. In general, it may be urged that bonds shall not run longer than the life of the improvement for which they are issued.

"Banks, trust companies, or other dependable investment dealers are ready at all times to give unbiased advice on municipal problems. If a municipality is facing serious questions, or contemplating a financial program involving issuance of bonds, they will find investment dealers sympathetic and interested, and often in a position to make helpful recommendations or suggestions."

Notable City Budget Messages

AMONG the city budgets which have recently come across our desk, those of Rochester, N. Y., and Toledo, Ohio, have budget messages worthy of note. When we pick up a budget document, we look for the budget message the first thing. If we do not find such a message in it, we are naturally somewhat disappointed. Why? Because the message, more than any other feature of the budget document, is the means of vitalizing the financial plan. It is the proper vehicle for setting forth fiscal policy, economic conditions, and social problems of the community, in fact, many things which have a direct bearing on the requirements of the government and which cannot be shown in tables of figures, no matter how they are arranged. Furthermore, the presentation of a message indicates clearly that the chief executive or administrator has assumed responsibility before the citizens and taxpayers for the budgetary proposals.

The message in the Rochester budget was prepared by Stephen B. Story, the City Manager. It presents a general view of the city's finances, with some discussion of the debt service. Each unit of the city government is then taken up and its needs briefly explained. For example, under the Public Library is the following explanation: "For many years the library employees have had the benefits of a standardized salary schedule with automatic increases for satisfactory service. The entrants to the library work have started at a rate as low as $700 or $800 per year, and practically all of the employees are of college grade. The automatic increases have been approved for the past two budgets and it is believed that in this instance they should be continued. These increases account for practically all of the increase in the estimate. Two new sub-branches are planned to be started in 1930, and it is expected that during the year the Monroe Branch will be able to move into its new building."

Mayor W. T. Jackson prepared the Toledo budget message. It sets up a balanced relation between the anticipated income and the proposed expenditures of the city. It then goes on to explain in more or less general terms the financial requirements of the city government.

More About Annual City Reports

OUR comments in the January issue contrasting the annual reports of Berkeley and Milwaukee brought an illuminating letter from Helen Terry, Assistant Librarian of the Milwaukee Municipal Reference Library. Miss Terry writes that she has been largely responsible for the preparation of the annual report which we reviewed and gives several reasons for its present form. She argues that the use made of the report has determined to a large degree its style, which she agrees is conventional. About 3,000 copies of the report are printed, 700 of which go to out-of-town addresses, such as city officials, municipal leagues, and libraries. The publicity bureau of the Milwaukee Association of Commerce uses about 650 copies. The other copies are distributed to local officials, luncheon clubs, and secretaries of civic organizations. The Real Estate Board receives a number of copies. There is a growing demand for the report on the part of the civics teachers, many of the high schools using it as a textbook on the city government. Quite a number of copies are distributed to citizens upon request.

In view of the use made of the report, particularly in the public schools, Miss Terry is of the opinion that it should contain authoritative information, concisely stated, on the various municipal activities. She says that no attempt has been made to "jazz up" the contents. The general procedure has been to go over the typewritten reports submitted by department heads and boil them down to a minimum of words without losing any important facts. Clippings in local newspapers are used in a supplementary way.

Miss Terry explains that the Milwaukee report does not usually receive much comment in the local papers when it appears, since it is published in the middle of the summer—seven or eight months after the close of the year to which it relates. As an annual report, it ought to appear within a month or two months at the most after the year is concluded, if it is to be of maximum value. In Cincinnati, for example, the City Manager gets out an annual report promptly at the close of the fiscal year. Colonel Sherrill had his report, covering the fiscal year ending December 31, 1929, ready on the last day of the year and submitted it to the City Council on January 2. The report was published in full in *The City Bulletin* of January 14. Pamphlet copies of it were also printed for distribution. While this report summarized the administrative activities of the city government in some 28 pages, it could not readily be used as a text in the city high schools.

Perhaps the Milwaukee report might be modified along the lines of the second annual report prepared by E. M. Fry, City Manager of Oklahoma City, and still serve its present purposes. Mr. Fry's report is called the "Citizens' Yearbook for 1929." It was published in July, 1929, and covered the fiscal year ending June 30. Its contents are set up in a rather unique manner. There are seven main heads or parts, as follows: (1) The City's Growth; (2) General Government; (3) The City as a Business Institution; (4) The City as an Employer; (5) The Public Contact Departments; (6) Special Projects and Problems; and (7) The City's Future. The report is not the ordinary, conventional type; it is well illustrated with charts and diagrams, and it closes with a view of the city's immediate future, which would seem to be a necessary feature of any annual account of municipal activities.

We ought to mention in connection with the Cincinnati report by Colonel Sherrill, referred to above, that Mayor Murray Seasongood also got out an annual report at the same time. Mr. Seasongood's report dealt mainly with municipal policies, while Colonel Sherrill's report, as we have indicated, related to the work of the administration. These two reports taken together give a rather complete picture of municipal affairs in Cincinnati for the past year. The scope of each report is an interesting commentary on the working of the manager plan in that city, indicating clearly the division of authority between the mayor and the manager.

Current City Problems in Illustrated Form

CITY Manager Hume K. Nowlan of Hinton, W. Va., has hit on the idea of submitting to the City Council an illustrated monthly report of the more important happenings in the city's administration. This report is presented in mimeographed form, interspersed with drawings which help to make the points more striking. The November report, which has come to our attention, dwells upon the ward system that prevails in the city and shows the relation of taxes and the distribution of activities in these political divisions of the government.

The Municipal Bond Market

By SANDERS SHANKS, JR., EDITOR, *The Bond Buyer*

RESPONDING to the easiest money situation seen in two years, municipal and other high-grade bond prices have moved up sharply in recent weeks. The technical position of the municipal market at the middle of March was more favorable than it had been at any time in years. The supply of bonds on dealers' shelves was far below normal and the prospective supply of authorized, but unsold, issues in the hands of municipalities was likewise of moderate dimensions.

With dealers convinced that the banking authorities favored an easy money policy, and with the business outlook indicating a continued period of business inactivity (meaning small demand for bank credit), sharp inter-dealer competition for all new issues placed on sale resulted in the award of such loans at prices quite satisfactory to the borrowers.

As this is written, it appears likely that the improved level of prices will encourage cities and other municipalities to offer bonds in greater volume, and the extent to which this happens will be an important factor in the market during the next sixty to ninety days. It may be pointed out, in this connection, that the output of new issues normally increases materially in the months just ahead; namely, April, May and June.

The following table, giving the details of recent sales of new issues, will indicate the current level of municipal bond issues:

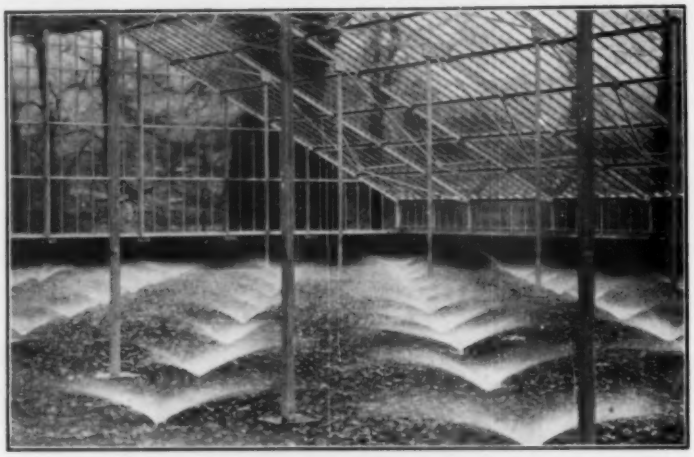
Amount	*Municipality*	*Rate (%)*	*Maturity*	*Net Basis (%)*
590,000	Worcester, Mass.	4	5-yr. (avg.)	3.92
320,000	Putnam Co., N. Y.	4¼	11-yr. (avg.)	4.16
$ 200,000	Racine, Wis.	4½	1-20-yr. (ser.)	4.21
1,750,000	Toledo, Ohio, Sch. Dist.	4¼	2-26-yr. (ser.)	4.21
2,425,900	Atlantic City, N. J.	4¼	9 2/3 mos.	4.23
504,000	Green Lake Co., Wis.	4½	12 1/3-yr. (avg.)	4.42
2,500,000	Birmingham, Ala.	4½	18½-yr. (avg.)	4.49
20,000	Penn Tp., Pa.	4½	1-5-yr. (ser.)	4.50
33,500	Warren Tp., Ohio, Ind. Sch. Dist.	5	7-yr. (avg.)	4.57
1,800,000	Tarrant Co., Texas	4½	15 1/6-yr. (avg.)	4.62
4,550	Hartford City, Ind., Sch. Dist.	5	5½-yr.	4.78
20,000	Scioto Tp., Ohio	5¼	5¾-yr. (avg.)	4.94
75,000	Gastonia, N. C.	5¼	17 1/3-yr. (avg.)	5.12
35,000	Goshen Co., Wyo.	5¼	15-25-yr. (opt.)	5.25

Charlotte's Easter Sunrise Celebration

A RECORD - BREAKING crowd of 6,000 is expected this year at the third annual Sunrise Service to be held in the open-air theater of Charlotte, N. C., under auspices of the Park and Recreation Commission, the Young Peoples' League, and the Ministerial Association. As last year, the beautiful Moravian liturgy will be combined with the other services, in a program to last exactly 45 minutes. Brass quartets will play carols in different parts of the city, from 4 a.m. to sunrise, at which time an orchestra in the open-air theater will sound the opening notes of the program.

Formerly, the programs were very simple because of the possibility of rain. This year, however, a new public auditorium-armory building has been completed within a hundred yards of the open-air theater. Its large, well-planned stage and its great seating capacity offer opportunities for transfer indoors of a religious pageant or masque on any scale, according to Walter J. Cartier, Superintendent, Park and Recreation Department.

Master Construction Glass-Overs for Sludge Beds



Glassing over the Sprinkling Filters is a comparatively recent development. This one, of Lord & Burnham Master Construction, located at Totowa, N. J., is accredited with being among the first

Decreasing Odors And Increasing Drying Efficiency of Sludge Beds and Sprinkling Filters

BY glassing over Sludge Beds and Sprinkling Filters, a perfect control of odor release is made possible. Odors that are highly objectionable when released as rapidly as developed, are rendered inoffensive when released under proper control as to time and amount. In this way, a most objectionable feature of a sewage disposal plant, is minimized.

In the case of sludge drying beds, a greater drying efficiency is also secured, the average outdoor drying in the vicinity of New York City, being around seven dryings per season. In some of our Glass-Overs, this has been raised from 14 to 25 dryings, 20 being a generally accepted average.

The Plant illustrated is at Totowa, N. J., and is a particularly interesting one in that it has two Glass-Overs, one of which houses a sprinkling filter, and one the sludge bed.

Glad to send you full particulars as furnished to us by Mr. Chas. H. Capin, Jr., who is the Sanitary Engineer in charge.

Lord & Burnham Co.

Sludge Bed Glass-Overs

Graybar Building, New York City | **208 South LaSalle Street, Chicago** | **Harbor Commission Building, Toronto**

Branch Offices: **Boston, Philadelphia, Irvington, Albany, Denver, Detroit, Cleveland, Buffalo, Greensboro, St. Louis, Montreal, St. Catharines**

THE MONTH IN PUBLIC HEALTH

Conducted by JAMES A. TOBEY, Dr. P. H.

May Day for Child Health

SINCE 1924 every May Day has also been Child Health Day in the United States and has been appropriately celebrated as such. Last year the occasion was honored by a presidential proclamation, authorized by Congress. This official declaration of the importance of child health was particularly fitting, since President Hoover, who promulgated it, has for more than five years been the active head of the American Child Health Association, which originally sponsored this child health observance of May Day.

In every state, chairmen have been appointed to organize the May Day health festivities for 1930. The keynote this year is parent cooperation in community child health and protection, and the slogan adopted is "Every Parent and Every Community United for Health for Every Child." A suggested program, intended to aid in making practical the ideals contained in President Hoover's Child's Bill of Rights, has been issued by the American Child Health Association, of which Dr. Samuel J. Crumbine is General Executive, and can be obtained from the headquarters of this association at 370 Seventh Avenue, New York City.

May Day, devoted by tradition to festivals and innocent springtime revels, is an appropriate time to emphasize the continuous importance of child health. This is a movement which deserves the support and participation of civic officials and community organizations. Such a health interest may offset to some degree the "red" connotation placed on May Day by the communists and other groups whose ideas are subversive to our American institutions.

Texas Holds a Milk Week

FROM March 30 to April 6, Texas is having a state-wide Milk Week, sponsored by the State Department of Health. The object of this effort is to increase the consumption of milk, to eliminate health hazards through impure milk, to inform the public about the value of pure milk, to promote expansion of the dairy industry, and to eradicate disease among dairy herds. These are all obviously laudable endeavors.

According to a mimeographed bulletin entitled "Echoes from the Cow Pen," issued by the State Department of Health in January, 1930, there are now 81 towns in Texas that have adopted the Standard Milk Ordinance. The bulletin states that milk products plants now insist upon knowing from their producers whether dairies are regularly inspected, and production methods approved by city and state health authorities.

Texas will be the scene of the next annual meeting of the American Public Health Association, as this organization of North American sanitarians will meet in Fort Worth from October 27-31, 1930. Dr. A. H. Flickwir, who is Director of Public Health and Welfare in Fort Worth, is in charge of the local arrangements.

The Child's Bill of Rights

The ideal to which we should strive is that there shall be no child in America:

That has not been born under proper conditions;

That does not live in hygienic surroundings;

That ever suffers from undernourishment;

That does not have prompt and efficient medical attention and inspection;

That does not receive primary instruction in the elements of hygiene and good health;

That has not the complete birthright of a sound mind in a sound body;

That has not the encouragement to express in fullest measure the spirit within which is the final endowment of every human being.

HERBERT HOOVER.

Three Decades of Service

LONG tenure of office by health officers seems, unfortunately, to be the exception rather than the rule. In Philadelphia, however, the present Director of the Department of Health has been connected with his city's health work for 31 years. According to an item in the *Monthly Bulletin* of the Philadelphia Department of Public Health for January-February, 1930, Dr. A. A. Cairns was appointed a medical inspector in the Bureau of Health in February, 1899, became Chief Inspector in 1904 and served as such for 21 years, was Chief of the Bureau of Health in 1926 and 1927, and was advanced to Director of the Department in 1928. Dr. Cairns points to his two greatest achievements during this period as the "complete elimination of smallpox in Philadelphia" and the "effective control of diphtheria." He contributes an article on smallpox control to this same issue of the bulletin and also one on diphtheria prevention.

A comprehensive hospital and health survey of Philadelphia, sponsored by the Chamber of Commerce, was conducted from November, 1928, to June, 1929, under the general direction of Dr. Haven Emerson. The 844-page report thereon contains many recommendations for improvement in the health and hospital services of this municipality.

Health on the Doorstep

SIXTEEN health centers are to be erected in New York City within the next four years, according to a press release from the Health Commissioner of that city. On February 6, 1930, the Mayor convened with the Health Commissioner, Dr. S. W. Wynne, and a committee on Neighborhood Health Development and discussed plans to divide New York into thirty health districts of 200,000 population each. The plan is eventually to place a health center in every district.

The cost of each of these health centers is estimated to be about $250,000 for construction, and about $6,500 a year for maintenance. The health center plan has been in operation in a number of other cities, such as Boston and Philadelphia, with considerable success. In Boston, however, three or four of these centers have been erected as the result of a bequest to the city by a public-spirited citizen, who left several million dollars for the purpose. Each has been dedicated with much ceremony, the last only several months ago.

The Record of Half a Century

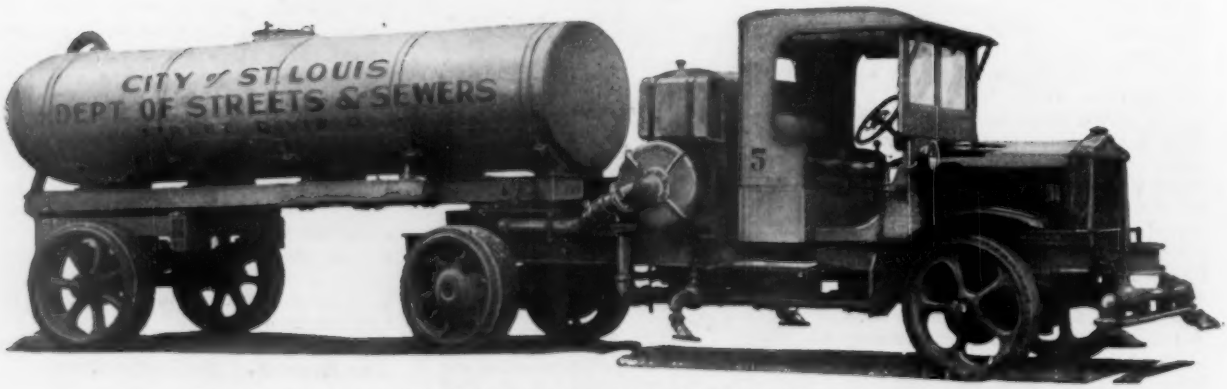
THE report of the New York State Department of Health for the year 1929, completes the records of a half-century of activity. According to Dr. Paul B. Brooks, Acting Commissioner, a comparison of the first with the fiftieth report serves to emphasize the progress which has been made and the tremendous growth in the size and organization of this Department. The office force in 1880 consisted of an executive secretary and a clerk. Today the number of employees is 659. Then the work was limited largely to securing reports on outbreaks of disease; now there are ten divisions in the Department, each dealing with a different phase of public health, and an institute at Buffalo which is exclusively for the study of malignant disease. The total sum spent from May 29 to December 1, 1880, when the first report was submitted, was only $4,690.82. The total appropriation for 1929 was $2,042,077.54.

Forty-seven pages out of 199 in the 1880 report are devoted to reports of diphtheria outbreaks. It is not unusual to find therein instances where all the children in a family contracted the disease, and in some cases all died. Today diphtheria cases or deaths are rare and could be even rarer.

Smallpox was widespread fifty years ago and of a virulent character. One epidemic totaled 757 cases with 238 deaths. Last year there were 290 cases of smallpox reported for the entire state, with no deaths. Of this number, 275 had never been successfully vaccinated.

Thirty pages of the 1880 volume were

TRACTION in water most of the time



In St. Louis, the city street flushers made good use of Goodyear Heavy Duty Cushion Tires

It is always "rainy day driving" wherever this truck goes. Water flushes forth in a steady stream just ahead of the tires which pull the load.

But the Goodyear All-Weather Tread bites through the sheet of water to firm footing beneath. The sharp-edged diamond blocks squeegee the road surface dry as they press down—without slippage, without waste of power, they roll their load along.

Even though the toughest of rubber must gradually wear down, the All-Weather Tread on these Cushion Tires can always have this powerful traction. The sides of these blocks are straight—the grooves are all straight lines. Thus, by a simple process of regrooving—which is a part of Goodyear service—the traction is restored, the cushion is maintained, with a certain gain in mileage.

Other Goodyear Tires just as accurately fit the needs of each municipal department using motor equipment.

On your new trucks, specify Goodyears

GOODYEAR

Copyright 1929, by The Goodyear Tire & Rubber Co., Inc.

More tons are hauled on Goodyears than on any other tires

Do you mention THE AMERICAN CITY? Please do.

required to report on the outbreaks of dysentery and typhoid fever in New York during that year. In 1929 there were only a few very small outbreaks of dysentery. In 1880 typhoid fever was very common; just how common is not known, for the vital statistics records of the state were not started until 1885. In that year the *death-rate* from this disease was 19.2 per 100,000 population. In 1929 it was 1.5 per 100,000. The *case rate* for last year was only 11 per 100,000, or almost one-half of the death-rate forty-five years ago. This remarkable reduction in cases and deaths from typhoid has, according to Dr. Brooks, come about almost entirely as a result of the Department's requirements regarding the purification of water-supplies, the proper disposal of sewage, the supervision of typhoid carriers, the careful oversight of the production of milk and its more general pasteurization.

Sex Information Sustained

A YEAR ago last March Mrs. Mary Ware Dennett of New York was convicted in the United States District Court for sending alleged obscene matter through the mails. This supposedly lewd material consisted of a reprint from the *Medical Review of Reviews* entitled "The Sex Side of Life," a brochure widely used by education authorities and highly endorsed by persons versed in social hygiene. Opposed to it were a number of professional moralists and other intolerant agitators, all somewhat fanatical in their misplaced zeal for what they considered reform.

On March 3, 1930, the Federal Circuit Court of Appeals reversed this conviction, thus vindicating Mrs. Dennett and sustaining the legitimate distribution of decent sex information. In the Court's decision, as reported in the New York *Herald Tribune* for March 4, it is stated that the defendant's discussion of the phenomena of sex is written with sincerity of feeling and with an idealization of the marriage relation and sex emotion. "We think," said the Court, "it tends to rationalize and dignify such emotions rather than to arouse lust."

In an editorial on this case, which has aroused national interest, the *Tribune* states that it ended as it should end. The Government may, of course, appeal to the United States Supreme Court, but it is time that this whole affair, which as the *Tribune* boldly suggests, seemed to partake of persecution, should be allowed to remain as it is. Honest sex education is essential to public health, just as obscenity is detrimental to it.

How Health Service Pays

UNDER the caption "Health Service Pays," an item in the monthly *Health Briefs* of the Tennessee Department of Public Health for February, 1930, tells how death-rates among expectant mothers were reduced by means of prenatal nursing care. During the four years from 1924 to 1928, there were 2,984 births in Rutherford County, the scene of a health demonstration conducted with financial assistance from the Commonwealth Fund. Among 812 expectant mothers who had nursing care, there were only 2 deaths, whereas among 2,172 not so served, there were 18 deaths, or a rate more than three times as high, 8.3 per 1,000 as against 2.5.

Similar figures appear with respect to infant mortality. Out of 777 babies who received prenatal care, and also neonatal care, in most instances, only 10 died before the end of the first month of life, but 81 out of 2,065 who did not get such care succumbed. In other words, there was a death-rate of only 12.9 per 1,000 of babies who had the advantages of health service, in contrast to a rate of 39.2 per 1,000 for those who did not.

Tennessee has been selected as the locale for further cooperative health efforts of the Commonwealth Fund, particularly in county health work.

Advice on Asthma

THE *Health Bulletin* of the North Carolina Health Department always contains interesting and pertinent material. In the February, 1930, issue of this bulletin, which is edited by Dr. G. M. Cooper, is a timely article on asthma, a condition which causes much trouble to many persons and provokes many ardent requests for information about its relief.

True asthma, like hay fever, is generally due to some type of hypersensitiveness, and the first step is, naturally, to endeavor to find out what causes the trouble. This fact can best be determined after a systematic examination by a competent physician. The location of the cause of the attack is often no easy matter and requires investigation and tests of the whole body, as well as of the diet of the patient, and the factors in his surroundings which may influence his idiosyncracy. They may be certain pollens, dusts, feathers, animals, or other external substances.

Once the cause has been determined, the cure is usually simple, unless there is some chronic disease of the upper air passages. The treatment, however, must fit the individual patient, which along with the necessity for proper diagnosis, is a cogent reason why the sufferer should procure competent medical advice.

A Correction

IN the item entitled "What a Whale of a Difference a Little Health Makes," in the March issue, it was stated that Dr. Richard A. Bolt is Director of the Cleveland Health Council. Dr. Bolt is Director of the Cleveland Child Health Association, and Howard W. Green is Secretary of the Cleveland Health Council, of which the Association is a member.

Observing National Music Week

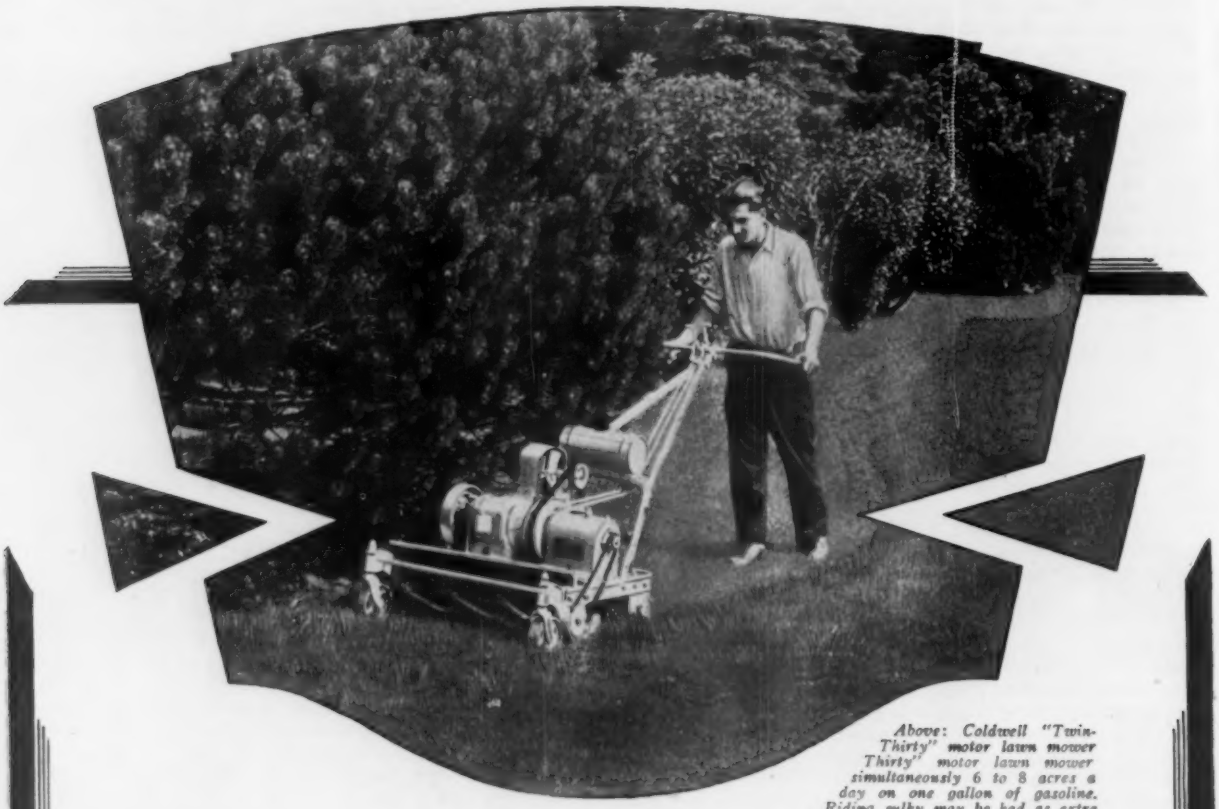
PROMPTLY on Sunday morning, May 4, this year, at least 3,000 towns and cities throughout the country will launch Music Week programs, upon which many of them are already busy. All the previous objective are being pursued in this seventh annual celebration. Children and grown-ups alike are being enlisted; schools and organized musical groups are being featured. But each year some one idea is made predominant; this year it is the adult participation idea, the idea that there is no age limit to the enjoyment of music and the making of music. "Music from Eight to Eighty" might well be the slogan. Emphasis is being placed upon the fact, as worded by C. M. Tremaine, Secretary of the National Music Week Committee, that "it is wise to preserve a continuity of musical activity throughout one's life if that life is to remain fully enriched." The pamphlet, "How to Organize a Music Week Committee," is available to municipal officials and all community groups, from the Committee offices, 45 West 45th Street, New York.

Public Interest in New Fire Equipment

PART OF THE CROWD AT THE RECENT DEMONSTRATION OF NEW YORK'S NEW AMERICAN-LA FRANCE WATER TOWER

SINCE 1867

COLDWELL POWER



Above: Coldwell "Twin-Thirty" motor lawn mower simultaneously 6 to 8 acres a day on one gallon of gasoline. Riding sulky may be had as extra equipment.

Progressive Superintendents endorse these modern motor lawn mowers

SUPERINTENDENTS of private estates, city parks, institutions, cemeteries, etc., are 100 per cent sold on Coldwell motor lawn mowers and rollers. These men know, from actual experience . . . and their endorsement of Coldwell motor lawn mowers is an incomparable tribute.

Advanced developments such as full-width drive rollers, twin-cylinder water-cooled motors, Timken Tapered roller bearings, oil-tempered self-sharpening blades . . . are features that make for the superlative performance and remarkable efficiency of Coldwell motor lawn mowers and rollers. Adapted for combined mowing and rolling or for separate mowing only.

Four models to choose from. Inspect them at your local Coldwell dealers, and arrange for a demonstration on your own grounds. No obligation. Literature on request.

COLDWELL LAWN MOWER COMPANY, NEWBURGH, N. Y., U. S. A.

IN CANADA—TAYLOR-FORBES CO., LTD., GUELPH

Manufacturers of DEPENDABLE Lawn Mowers—HAND, HORSE, GASOLINE, ELECTRIC

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Ordinances

ATTICA, N. Y.—October 8, 1929.
GREENBURGH, N. Y.—July 11, 1929.
HEMPSTEAD VILLAGE, N. Y.—February 26, 1930.

Eminent Domain

ALABAMA.—*Rudder v. Limestone County*, 125 So. 670.—The statute permitting compensation in condemnation proceedings for highway purposes to be fixed by considering the enhanced value to the remaining lands of the owner of the land taken by reason of such highway is not contrary to the Constitution of the state or the United States as a taking of the land without just compensation.

NOTE BY EDITOR.—This rule, under which the landowner is paid for his land only the amount of his actual damage, is in force in many states, but is contrary to express constitutional provisions in others. There never has been any ground for claiming that it was contrary to the United States Constitution.

MICHIGAN.—*Detroit International Bridge Co. v. American Seed Co.*, 228 N. W. 791. —A toll road or bridge established by public authority is a "highway" and land may be taken for it by eminent domain.

Private Restriction for Residence Purposes

GEORGIA.—*Hamm v. Wilson*, 151 S. E. 11.—A provision in a deed restricting land to use for "residence purposes" does not prohibit the erection of apartment houses on it when exclusively for residence purposes. An apartment house is a residential building and only one building, although intended for occupancy by more than one resident; and is not prohibited under a restrictive covenant providing that only one residence shall be erected on each lot.

A restrictive covenant stipulating that only one residence shall be erected on each lot will not be extended beyond its plain meaning.

Power of City Council to Grant Zoning Exceptions—Non-Conforming Use

IOWA.—*Marquis v. City of Waterloo*, 228 N. W. 870.—A city ordinance giving the City Council the right to grant permits in exception to the zoning ordinance is constitutional. In accord, *Appeal of Valicenti* (Pennsylvania), 148 Atl. 308. The failure of the council to adopt rules and regulations with regard to such issuance does not make their action in so doing invalid as arbitrary.

A zoning ordinance is not unlawfully discriminatory for allowing the continuance of non-conforming uses.

Garages

IOWA.—*Pauly v. Montgomery*, 228 N. W. 648.—In proceedings to enjoin as a nuisance the maintenance of a garage adjoining plaintiff's home it is not essential that the neighborhood should be exclusively residential or restricted to residence.

NEW YORK.—*Mazzavell v. Walsh*, 238 N. Y. Supp. 318.—Where the applicant has established the basis of his appeal to the Board of Standards and Appeals of New York City under the clause of the Building Zone Resolution providing that the Board may permit in a business district the erection of a garage or stable in any portion of a street between two intersecting streets in which portion there exists a garage for more than five motor vehicles or a stable for more than five horses, which existed on July 25, 1916, he need not in addition show practical difficulties and unnecessary hardship.

Where the evidence showed that the use of the premises in a business district for a public garage would have little or no effect on its neighborhood because of the presence therein of other garages, storage yards, stables, wagon sheds and other structures making development of the land for residential purposes or stores unlikely, the Board should have granted the application for a public garage even if the applicant was required to show hardships and difficulties.

PENNSYLVANIA. — *Sprout v. Levinson*, 148 Atl. 511.—The construction of public garages in places surrounded exclusively by residences constitutes a nuisance *per se*, operation of which will be enjoined, and the same is true of gas or filling stations. Where the district is commercial, the right to maintain them depends upon whether their continuance in operation constitutes a nuisance in fact which should be restrained.

The mere fact that a person living in adjoining premises is subjected to some annoyance is no ground for relief in a commercial district.

Boards of Appeal—Parties to Appeals

MARYLAND.—*Greenway Apartment Co. v. Maxwell Suls et al.*, constituting the Board of Zoning Appeals of Baltimore City, et al., Baltimore City Court, reported in *Baltimore Daily Record*, March 1, 1930. Parties in interest other than the Board of Zoning Appeals and City Officials may properly be made appellees in appeals from decisions of the Board.

Non-Conforming Use

NEW YORK.—*Caponi v. Walsh*, 238 N. Y. Supp. 438.—Application for a permit to erect a gasoline filling station in a business district in New York City after the amendment of the zoning resolution forbidding such stations in such districts. The applicant claimed the right to a permit on the ground that his predecessor had a vested right to carry on the business on the premises because he had, previous to the amendment, placed thereon gasoline ordinarily used in such business. *Held* that the application was not for a variance requiring proof of practical difficulties or unnecessary hardship, to be granted in the discretion of the Board of Standards and Appeals, but for the decision as to the prior existence and maintenance of a gasoline station on the premises as a matter of fact.

Retail Business District

NEW YORK.—*Morrill Realty Corporation v. Rayon Holding Corporation*, Supreme Court, New York County, reported in *New York Law Journal*, February 13, 1930.—The amendment of the Zoning Resolution of New York City establishing a retail business district is valid.

Vacation of Street

SOUTH DAKOTA.—*City of Colome v. Von Seggern Bros. and Ludden*, 228 N. W. 800.—The town council has no right to vacate a street and alley for the purpose of inducing the owner of adjacent land to enter into business and erect a lumber shed thereon. It cannot vacate public streets for a purely private purpose, or give exclusive use of a street to private individuals for their use in strictly private business.

Reasonableness

WISCONSIN.—*Schwan v. City of Eau Claire*, Circuit Court, Eau Claire County, June 24, 1929.—The making of parts of two city lots 214 feet square in all, situated in the center of a one-family residential zone district, into an apartment district is unreasonable and invalid. It evidently is not for a public purpose. It is unjust to the other property owners in the one-family district.

NOTE BY EDITOR.—This is the first case of this sort, and is evidently decided in accordance with justice and sound principles.

Police Power Setback—Street Widening

WISCONSIN.—*State ex rel Wittenberg v. Board of Appeals of City of West Allis*, Circuit Court, Milwaukee County, Wis., December 6, 1929.—An ordinance providing for a setback under the police power without compensation, whose purpose was to reserve land for future street widening, is invalid.

Title to Zoning Ordinance

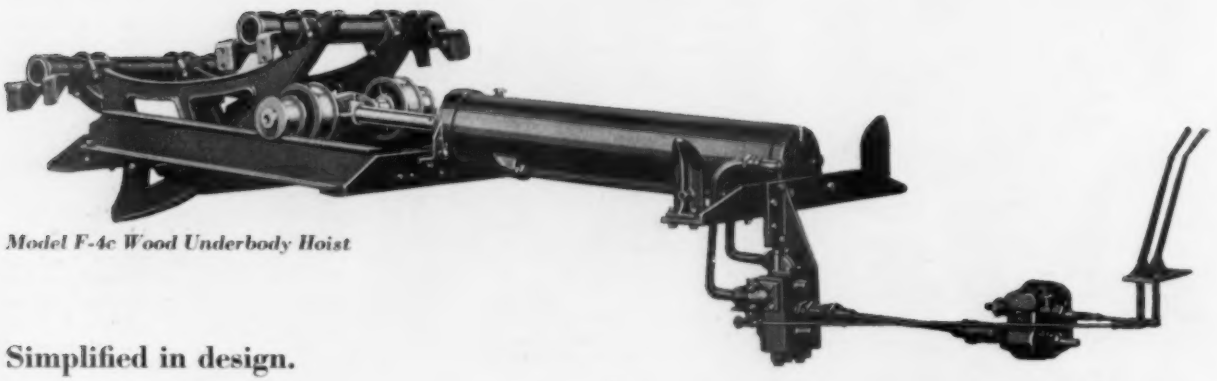
NEW JERSEY.—*Robert L. Evans, Inc., v. Williams, Building Inspector of Borough of Roselle*, 148 Atl. 206.—A variance between the title and the body of an ordinance does not affect its validity.

A classified, annoted index to the zoning and city planning decisions reported in this department during the last six years will be a feature of THE MUNICIPAL INDEX for 1930, now in press.

BETTER THAN EVER

Improved

7 NEW SLANT TYPE HOIST MODELS ALL-STEEL CONSTRUCTION AND EVEN MORE STAMINA!



Model F-4c Wood Underbody Hoist

Simplified in design.

More compact—Unit Construction.

Slanting position of cylinder gives greater lifting power.

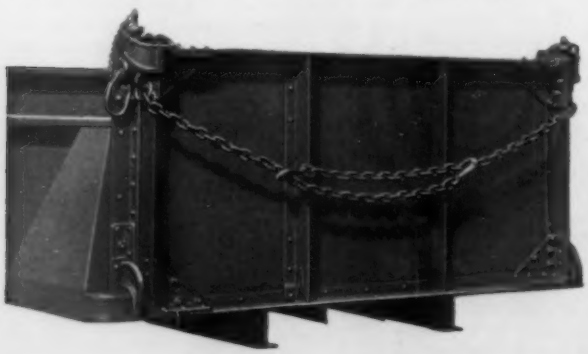
Cylinder supports, front and rear, drop-forged steel.

Lifting force applied to longitudinal members of body sub-frame—strongest part of body.

Cams mounted on special seamless steel tubular supports.

Tubular supports attached to longitudinal body frame members by pressed steel brackets.

Standardized designs, special machinery, skilled workmen, large production, enable us to give dump truck users maximum value in all-steel dump bodies.



Any chassis equipped with a Wood Hoist and a Wood All-Steel Dump Body is a more efficient dumping unit.

WOOD HYDRAULIC HOIST & BODY CO.

DETROIT U. S. A.

Branches and Distributors in Principal Cities

WOOD

HOISTS & BODIES

THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Property Owner Held Liable for Sidewalk Accident Due to Freezing of Water Discharge from Down-Spout.—A down-spout on a building had been permitted by the owner to remain with a hole in it, causing water to be discharged upon a public sidewalk. Ice formed on the walk, and a pedestrian was injured in consequence. In affirming a judgment exonerating defendant city but holding the property owner liable, the Iowa Supreme Court said, in the case of Updegraff vs. City of Ottumwa, 226 N. W. 928:

"The duty of maintaining the streets and sidewalks in a reasonably safe condition is imposed by statute upon cities and towns. . . . The duty thus imposed by statute upon municipalities does not, however, relieve property owners or others from the duty not to obstruct or place dangerous instrumentalities thereon so as to endanger the safety of the public rightfully using the same, nor from liability for damage occasioned thereby. . . . It is elementary that the owner of a building abutting upon a public street may not lawfully collect water accumulating from rain or snow upon the roofs of buildings, and by some artificial means discharge the same upon the sidewalk or street, where it freezes and forms ice. . . . Nor may such owner negligently permit the water to escape from a defective down-spout or other agency and accumulate upon the sidewalk so as to freeze and cause injury to others."

City Held Liable for Overflow from Stream Caused by Constructing Insufficient Culvert.—If defendant city caused overflow of plaintiff's land by constructing an inadequate culvert to carry the flow of a stream, it was liable in damages, decided the Kansas City Court of Appeals in the case of Yeoman vs. Kansas City, 18, S. W. (2d), 107. The Court said:

"Whether or not the planning and construction of the culvert was a governmental act, for the insufficiency of which it is claimed the city is not liable, if done in good faith, is not involved in the larger question presented. The natural watercourse had its own spillway to the south of the dry-weather channel; and a claim for damages, caused by the interruption of this and the consequent projecting of an unnatural volume of water into the main-channel outlet, cannot be defended against on the ground that the culvert was in good faith constructed to meet the natural flow, high or low."

A Railroad Could Not Be Compelled to Construct a Street Over Its Right-of-Way.—The Louisiana Public Service Commission ordered plaintiff railroad company to construct a suitable crossing for street purposes. But in the case of Louisiana Railway & Navigation Co. vs. Louisiana Public Service Commission, 115 So. 465, the Louisiana Supreme Court decided that the order was void, because the railway company owned the land in fee simple and because there had been no dedication of any part of the land for street purposes that was binding upon the company.

Indexes to Legal Decisions

The items appearing in this Department each month are classified by subjects in THE MUNICIPAL INDEX. The 1928 edition of the INDEX, on pages 110 to 115, covers the legal items published during 1924 to 1927 inclusive; and pages 94 to 97 of the 1929 INDEX list the items for 1928. The 1929 items will be similarly indexed in the 1930 MUNICIPAL INDEX, now in preparation.

See page 177 for reference to a special index to zoning decisions.

City Council Cannot Absolve the Treasurer from Statutory Responsibility Concerning Municipal Funds.—A city treasurer and his bondsmen were liable for municipal funds lost through failure of the bank in which they were deposited, although he acted in good faith and persuant to a resolution of the City Council, where bond for the full amount of the deposit was not taken from the bank, as required by statute. In reaching this conclusion in the case of State vs. Carney, 217 N. W. 472, the Iowa Supreme Court said:

"Under this statute, the city council could proper designate a certain bank as a depository, and authorize the city treasurer to deposit funds in said bank to an amount protected and covered by the depository bond. It could not, under such statute, authorize the city treasurer to deposit funds in said bank in excess of the amount protected by said depository bond, or to deposit funds without any depository bond."

A City May Be Required to Repay Money Received under a Beneficial, Although Illegal, Contract. — Stark County, N. Dak., through its Commissioners, lent $19,000 to the city of Dickinson for street improvement purposes under an agreement for partial repayment out of funds later to become available. Holding that the county was entitled to recover, the North Dakota Supreme Court said, in litigation between the county and the city (217 N. W. 525):

"In this case the primary purpose was not illegal. The County Commissioners, with good-natured motives, in a spirit of friendly cooperation and with a desire to be of help to a municipal corporation within the county, paid out a portion of the expense of paving the city upon the agreement that one-fourth of it would be returned from the large portion of the expense donated by the state and the Federal Government. It is neither immoral, unjust, nor inequitable for the county to ask to have its money returned. . . ."

"It is conceded that the agreement was entered into in good faith and with no intent to evade the law. We are not dealing with an attempt to prevent an irregular deal being consummated, or an illegal agreement executed. We are dealing with a case where the city had something belonging to the county and seeks to retain, though promising to return it."

Charter Provisions Concerning Eligibility to Office Should Be Given Reasonable Interpretation.—A provision of the charter of the city of Enid, Okla., required that its mayor and commissioners be bona fide electors and freeholders of the city and have paid a property tax for the last two years preceding their election. Defendant's eligibility to the office of street commissioner was questioned on ground that he had not been a taxpayer for two years or more. But the Oklahoma Supreme Court decided in the case of Stucker vs. Beavers, 262 Pac. 212, that he was qualified, because he had bought property and paid taxes on it covering a period of four years back, some of the taxes being delinquent. The Court held that, under a reasonable interpretation of the charter, it was sufficient that defendant have paid taxes for two years or more, although he may have paid them all at one time.

Oklahoma Utility Permit Act Held Unconstitutional as Permitting Perpetual Monopolies and Violating Electoral Rights.—Because of provisions in the Oklahoma constitution, the Supreme Court of that state lately decided (City of Okmulgee vs. Okmulgee Gas Co., 282 Pac. 640) that the Revocable Permit Act of Oklahoma, enacted in 1925, is void.

In substance, that act purported to authorize the surrender of municipal franchises to furnish power, light, heat, gas, electricity, or water, in exchange for permits from the state. These permits were to remain in force unless and until revoked by the Legislature "whenever in its opinion such permit may be injurious to the citizens of this state; in such manner, however, that no injustice shall be done to the holder of such permit." The gist of the Supreme Court's decision is as follows:

This act contravenes the following clause of the Oklahoma constitution:

Make it *minutes*, not *miles* to Market

SEVENTY-FOUR per cent of American farmers still live on dirt roads. Their produce travels to market much more slowly than that of the lucky 26 per cent who live on smooth, modern highways. Waste is greater; delivery later. That means that costs—and prices—are higher, and profits lower.

This farm-to-market road problem can be solved—is being solved by hundreds of communities which have adopted Tarvia "Re-Tread" programs.

Tarvia "Re-Tread" enables any community to have easy-riding, traffic-safe, storm-proof highways—quickly and without excessive taxation. No elaborate organization or expensive equipment is necessary to do a perfect job with "Re-Tread."

The Tarvia field man will gladly give you the details. 'Phone, wire or write our nearest office.

The Barrett Company

New York	Chicago	Philadelphia
St. Louis	Minneapolis	Boston
Detroit	Cleveland	Birmingham
Buffalo	Columbus	Milwaukee
Providence	Syracuse	Cincinnati
Baltimore	Toledo	Rochester
Lebanon	Youngstown	Bethlehem
		Hartford

In Canada:
THE BARRETT COMPANY, Ltd.
Montreal, Toronto, Winnipeg, Vancouver

Tarvia "RE-TREAD"

TRADE MARK REG. U. S. PAT. OFF.

Printed in U.S.A.

Why not remember to mention THE AMERICAN CITY?

"Perpetuities and monopolies are contrary to the genius of a free government, and shall never be allowed." "It will be noted that the act does not give the Legislature power to grant, extend, or renew, but specifically limits the power of the Legislature," etc., observes the Court.

It further violates the provisions of the same constitution, forbidding municipal corporations to grant, extend or renew franchises for more than 25 years or without approval of a majority of the qualified electors.

We acknowledge the courtesy of L. L. Cowley, Esq., City Attorney of Okmulgee, Okla., in drawing special attention to this important decision.

City Held Not Liable for Gas Explosion Resulting from Uncapped Opening in Private House.—A city operating a natural gas plant was not liable for personal injuries and property damage resulting from an explosion in a private house due to the fact that the city had turned on a gas supply at a time when there were uncapped openings in the house. (Phillips vs. City of Alexandria, 123 So. 510.) This conclusion reached by the Louisiana Court of Appeal rested upon the facts that the city did not install the gas pipes and fixtures in the house and did not connect or disconnect them, and was not asked to inspect the house before turning gas into the service pipe on request.

However, the Court said concerning the responsibility of cities for such accidents:

"Natural gas is an explosive and a highly dangerous substance, so that the city in handling it must be held to a degree of care commensurate with the danger. In view of that fact, if the employees of the city knew at the time the gas was turned into the service pipe at the curb that there was an uncapped gas opening in the house through which gas would escape, or if they became aware after it was turned on that gas was escaping into the house through such opening, and made no effort to stop the flow and protect the occupants of the house, the city, we think, would be liable, even though it did not install the plumbing or the fixtures in the house, and did not at any time connect with the piping or disconnect therefrom any plumbing fixtures."

City Held Liable for Injury to Pedestrian Tripped by Inconspicuous Parkway Guard.—That a pedestrian was cutting across a parkway when he tripped over a low and unseen wire along the edge of a sidewalk did not prevent him from recovering damages against the city, held the Michigan Supreme Court in the case of Jablonski vs. City of Bay City, 226 N. W. 865. Said the Court, in part:

"It undoubtedly is the right of a city to determine, in its discretion and beyond judicial review, what part of a nominal highway shall be devoted to the various purposes of travel, to locate the road for vehicular traffic, and the portions for sidewalks, gutters, parkways, and other suitable uses. . . .

"But the city cannot lawfully, by the mere provision of suitable passageways for pedestrians, maintain dangerous and unreasonable obstructions or conditions in the street at places where people may reasonably be expected to go. It has the duty, in a well-traveled district, to keep the whole highway reasonably safe for travel. . . . It cannot confine its citizens in a traffic groove. It must take into account the natural inclination of children to run about in play, and the perverse insistence of adults to cut corners and cross streets and grass plats instead of following precisely the beaten or provided path. . . .

"The right to guard grass plats from traffic is undoubted and conceded. But, as the city must anticipate that pedestrians will cross the parkways, the guards employed must not be dangerous to travelers. Only those of such character and so placed that the city will continue to perform its statutory duty to keep the street in a reasonably safe condition for travel are permissible. The essential question is whether the guard is a reasonable one. The wire as described in the declaration, by reason of its original height or lack of height, its sagging, its position, its low visibility, especially in winter, may fairly be considered not a reasonably safe guard but a dangerous trap to pedestrians; and the question of whether it was a proper guard or a dangerous instrumentality resulting in a breach of the statutory duty of the city would be for a jury."

Health Officer Held Not Impliedly Authorized to Employ Physician at Town Expense.—A neighbor called a physician to treat a child having diphtheria. On recovery of the child, the physician notified the local health officer, who directed him to give antitoxin to the other children in the family.

No municipal official with authority to employ a physician having done so, the Selectmen of the town refused to pay the doctor's bill. His suit to recover was defeated before the Supreme Court of New Hampshire (Sweeney vs. Town of Peterborough, 147 Atl. 412.) That Court said in reviewing an order dismissing the suit:

"While it is well-settled law that a 'promise may be implied against' a town 'from the acts of its agents' acting within the scope of 'their authority, as in the case of natural persons,' . . . this principle does not help the plaintiff's case. The only town official who did acts from which a promise could possibly be implied was the health officer. He had no authority to furnish medical attendance at the expense of the town, even by express contract . . . and *a fortiori* [for stronger reasons] no promise on behalf of the town could be implied from his conduct."

Appropriation to a Town Employee Held Invalid as Being a Gratuity.—Defendant town was enjoined, in a suit by taxpayers, from paying a former highway employee $1,202.64 "for overtime services," in the case of Jones vs. Inhabitants of Natick, 166 N. E. 754. The Massachusetts Supreme Judicial Court said:

"It is in the power of towns to settle claims which may be made upon them arising out of their administration of their municipal affairs. A vote to appropriate money for such a purpose is therefore binding upon them, even if upon subsequent examination it is ascertained that the claim which was to be settled thereby was one which could not have been successfully maintained. . . . They have no authority to appropriate money for gratuities to persons whose situation may appeal to public sympathy. . . . There is no doubt that a town may pay a part of a genuine claim made upon it by way of compromise. . . .

"The fact that the plaintiff [employee—not plaintiff?] was employed by the town from August 16, 1923, until June 5, 1926, and during all that time was paid by checks indorsed by him, each check having a statement printed on the back that it was in full payment, was evidence that the plaintiff was not entitled to be paid for overtime. This evidence, together with the other findings of the master, warranted the conclusion of the trial judge that the vote of the town was not by way of compromise of a doubtful claim made against it by Porter, but was in substance and effect a mere gratuity."

City Held Liable for Typhoid Death Caused by Contaminated Water-Supply.—In the case of Pennsylvania Railroad Co. vs. Lincoln Trust Co., 167 N. E. 721, the Appellate Court of Indiana upheld a damage award in favor of the estate of one who died of typhoid contracted in drinking water supplied by the city of Fort Wayne. The city and the railroad were joint defendants. The water was contaminated through a negligently maintained connection between a water system operated by the city and a system operated by the company, whereby raw river water was permitted to flow into the city water-mains. Judgment against both the city and the railroad company was affirmed. In passing, the Court said:

"The city is only bound to use reasonable care to see that a reasonably pure and wholesome supply of water is furnished to its patrons, and . . . as distributor of a public utility it is not a guarantor of the purity of the water furnished, nor is it bound to furnish absolutely pure water. And it may be stated as a general rule that there is no duty on the part of a public utility, such as a city, to inspect the devices, apparatus, or fixtures of a responsible patron on the patron's property, located at a point beyond the meter, which is the point of delivery of the utility. . . .

"The city, having permitted the railroad company to connect its water-main with the water-main of the city, was in duty bound to exercise reasonable care to see that no polluted and impure water, dangerous to health, was allowed to enter into its mains through the water-main of the railroad. . . . When a city or other public utility assumes that which is practically an exclusive right, i. e., to provide a community with such a prime necessity of life as water, sound public policy requires that it faithfully perform its duty by furnishing a supply adequate in quantity and wholesome in quality. From the very nature of things, the consumer must rely on the proffered supply."

COMING EVENTS—

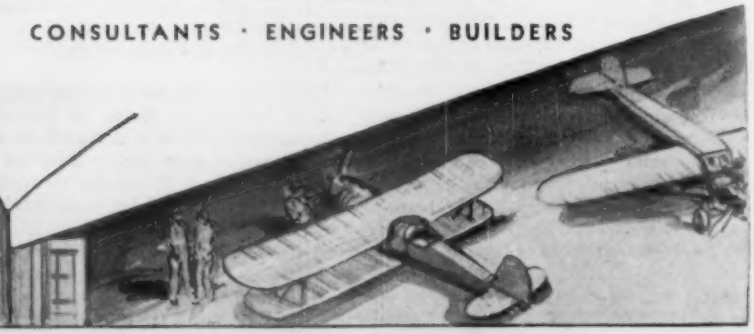
Will your City Fit Into The Air Transport Map of The Future?

Cities that built adequate airports several years ago are today reaping the benefits in airplane factories, air transport lines and other business attracted by modern air facilities. » » » Five years hence, many more cities will be marked as air transport terminals by reason of having provided the necessary airports. » » » If your town is considering an airport, it will pay you to avail yourself of our specialized knowledge and experience in every step of the project...from site selection to actual operation.

We would like to send you our booklet—
"BEFORE STARTING YOUR AVIATION DEVELOPMENT"
Write for it today . . . there is no obligation.
before starting your aviation development

AIRPORT
DEVELOPMENT & CONSTRUCTION CO.
PHILADELPHIA

CONSULTANTS · ENGINEERS · BUILDERS



Law Permitting Municipality to Insure in Mutual Company Held Constitutional.—A constitutional prohibition against the lending of municipal credit to private corporations, etc., does not prevent a municipality from insuring buildings with municipal insurance companies, according to the decision handed down by the Pennsylvania Supreme Court in the case of Downing vs. School District of City of Erie, 147 Atl. 239. Upholding the validity of a Pennsylvania statute permitting the carrying of such insurance, the Supreme Court said:

"Our constitutional provision was designed to prevent municipal corporations from joining as stockholders in hazardous business ventures, loaning its credit for such purposes, or granting gratuities to persons or associations where not in pursuit of some governmental purpose. Taking of insurance in a mutual company with limited liability is not within the inhibition, for the district does not become strictly a stockholder, nor is it loaning its credit. It agrees to pay a fixed sum, and can be called upon for the total only in case of some unusual catastrophe causing great loss. Until this contingency arises, it is required to advance but a small portion of the maximum, and is, in effect, loaned credit as to a possible future demand by the company for the balance which may become payable. By the terms of the policy the district did not assume responsibility for losses of others insured, except as to a named and limited amount."

City Held Liable for Damage by Bursting of Water-Main.—A judgment for $17,128.79 against defendant city on account of damage done to goods in the cellar of a private business building, due to the bursting of a water-main, was affirmed by the Pennsylvania Supreme Court in the case of Riegel & Co. vs. City of Philadelphia, 145 Atl. 837.

The Court decided that the city had had ample notice that there was a leak in its water system, and that, in the light of notices received, "it was its duty to investigate all its water pipes in the street until the source was found."

Minutes Insufficient to Show Adoption of Ordinance Authorizing Equipment Purchase.—The seller of a fire engine to a Missouri village was denied the right to recover the contract price, on the ground that no ordinance had been adopted authorizing the purchase, as required by statute. (Openchain-Boyer Co. vs. Village of Mercer, 17 S. W. 2d, 377.) The Court said:

"In the case at bar the contract will be held good if it be found the minutes in evidence show the incorporation of a resolution containing the essential elements of an ordinance, but it appears the recitation in the minutes is to the effect that the matter of a chemical engine was thoroughly explained and discussed, and the chairman authorized 'to talk with business men of Mercer in regard to the engine and in regard to the price and to donation. Contract signed by all members present.' The act was not even in the form of a resolution or motion, and could not therefore be considered as having the effect of an ordinance, under the cited cases. There appears no minute authorizing the contract. To call the said minutes an ordinance, either in form or substance, would be an abuse of the terms of the statute."

Maintaining Police and Fire Alarm System Held Governmental Function Relieving City from Negligence. — An employee of defendant city was fatally injured through the falling of a telephone pole from which he was removing a wire constituting part of the municipal police and fire alarm system. In a suit by his administrator to recover damages, judgment against the city was reversed by the North Carolina Supreme Court on the ground that "in the erection and maintenance of its police and fire alarm system, the city of Charlotte, as a municipal corporation, was engaged in the exercise of a governmental function." (Cathey vs. City of Charlotte, 148 S. E. 425.)

Ordinance Regulating the Distribution of Gasoline Upheld in Louisiana.—An ordinance of the city of Shreveport, La., provides that "it shall be unlawful to distribute or deliver gasoline, benzine, naptha, or like inflammable or explosive substances, in the corporate limits of the city, from any tank wagon, truck or vehicle, carrying in excess of 5 gallons (whether in one or more containers), except through metal-lined hose extending from the containers on such vehicle into the filler pipe of an underground tank installed and maintained under permit from the city." Upholding the validity of this regulation, in the case of City of Shreveport vs. Nelson, 115 So. 469, the Louisiana Supreme Court said:

"The purpose of the ordinance in forbidding the delivery of flowing gasoline from a tank containing more than 5 gallons is simply to guard against the alarming consequences of fire communicating to a large volume of gasoline on the streets of the city; and in our opinion the ordinance does add to the public safety and does tend to greatly diminish the fire hazard in said city, to say nothing of the obvious danger of violent explosions. . . .

"The fact that the ordinance does not forbid several other . . . methods of delivering gasoline claimed to be . . . more dangerous than that which is actually forbidden, does not render it objectionable as unreasonable or unfair or arbitrary. . . . The fact that a law or ordinance forbids some things and does not forbid others which it might or could or should have forbidden does not render it objectionable as denying any person due process of law or the equal protection of the laws."

Town Held Entitled to Require Railroad to Replace Wooden Bridge with Concrete.—In 1901, defendant town in North Carolina permitted plaintiff railroad to excavate under streets to eliminate grade crossings, on constructing bridges over the excavations. It was required that a bridge to be built on Main Street should be a "proper and good wooden bridge." The bridges were required to be maintained at the railroad company's expense. In 1928, the Main Street bridge was declared by the town to be a nuisance, and the company was required to replace it with a concrete one. This bridge was within the town fire limits as they had been extended in 1927.

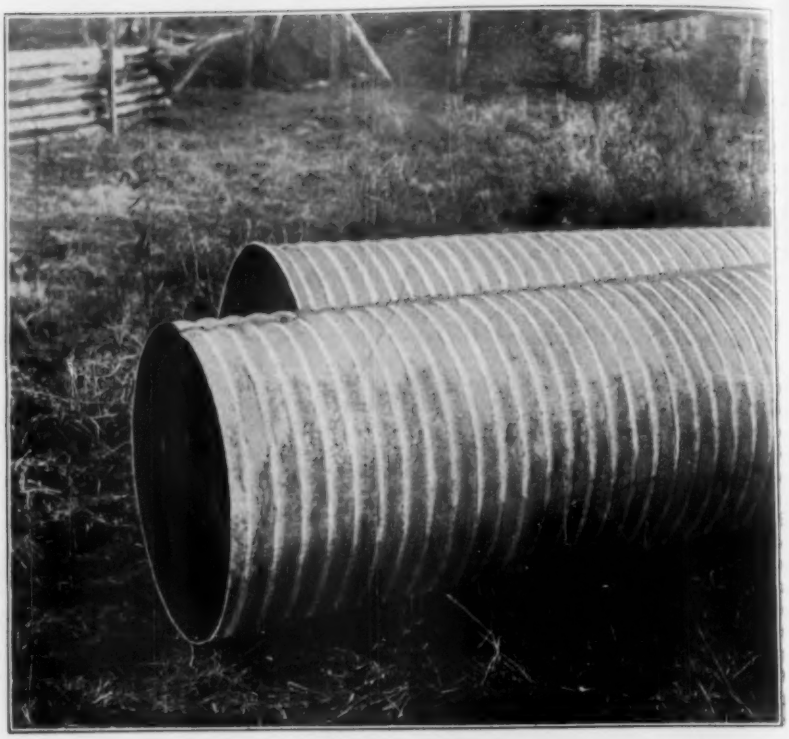
The company sued to enjoin enforcement of the ordinance, claiming that the measure was unconstitutional as impairing the company's contract rights, as depriving the company of its property without due process of law, and as interfering with interstate commerce, etc. But the United States Circuit Court of Appeals, Fourth Circuit, has affirmed a decree upholding the validity of the ordinance and dismissing the suit. (Carolina & Northwestern Railroad Co. vs. Town of Lincolnton, 33 Fed. 2d, 25.) That Court said:

"The whole case resolves itself into a question as to the power of the town, after granting a license to complainant to cross its streets below grade, to pass ordinances for the safety of the public requiring that proper bridges be maintained across the excavations made in the streets for this purpose; and we think that it is clear that the granting of such a license does not deprive the town of the power to make reasonable regulations with regard thereto, and that such regulations cannot be said to violate either the 'Contract' clause of the Constitution or the 'Due Process' clause of the Fourteenth Amendment."

Taxpayers Held Entitled to Restrain Misapplication of Electric Plant Revenues.—In the case of Freeland vs. City of Sturgis, 226 N. W. 897, the Michigan Supreme Court held that plaintiffs sufficiently showed a right to enjoin city officials from using electric plant revenues to pay general expenses of the city. The meat of the decision reads:

"The plaintiffs are three resident taxpayers of the city of Sturgis. . . . It is alleged that they are users of a large amount of electrical energy; that the effect of the illegal action of the city is to compel them to pay a greater portion of the general expenses than they should pay and to practically exempt from taxation for such expenses large property holders who do not use any considerable quantity of light and power; that the plaintiffs may suffer further damage by the transfer of the utility fund to the general expense account of the city instead of using it for the proper rehabilitation of the plant and for retiring the bonded indebtedness; that, in the absence of a surplus or sinking-fund out of which to meet these expenditures, there is an ever-present danger of assessments against the plaintiffs' property; that they are owners of industries which use large amounts of electrical energy; and that the misappropriation of the utility receipts by the city without retaining a fund for maintenance and for payment of the bonded indebtedness hazards their property and its earning capacity.

"These allegations show that a substantial injury threatens the plaintiffs, and are sufficient to confer jurisdiction at the suit of individual taxpayers."



In ground 20 years — still "almost perfect."

Section of GOHI Corrugated Culvert installed in Putnam County, Tenn., in 1909.

How Long Will . . .

Corrugated Culverts Last? . . . *Nobody Knows!*

(Meet copper-bearing pure iron requirements in all accepted specifications for corrugated metal culverts.)

NO one knows now and probably no one will know for another fifty, seventy-five, or more years. But the service given in thousands of installations like the above points conclusively to a life far beyond the time when erosion and other natural forces will make re-location of the drains a necessity.

GOHI Corrugated Culverts are made of GOHI Genuine Open Hearth Iron which is guaranteed 99.90% pure Iron-Copper alloy. This material has the highest resistance to corrosion of any present-day culvert metal. Its durability is a fully established and demonstrated fact.

GOHI Corrugated Culverts have the strength to withstand any traffic conditions — the flexibility to prevent cracking from settling earth or freezing water. No repairs, no upkeep. Easily installed between sunup and sundown. Specify "GOHI Corrugated Culverts" for lowest-cost-per-year service and freedom from culvert troubles.

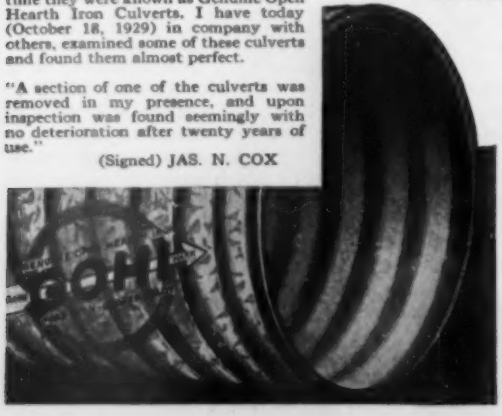
Here's Durability Proof

"In 1909, 1910, and 1911, as Secretary and Purchasing Agent for the General Road Commission of Putnam County, Tenn., I bought our culverts from the Newport Culvert Company. At that time they were known as Genuine Open Hearth Iron Culverts. I have today (October 18, 1929) in company with others, examined some of these culverts and found them almost perfect.

"A section of one of the culverts was removed in my presence, and upon inspection was found seemingly with no deterioration after twenty years of use."

(Signed) JAS. N. COX

© 1930, G. C. M., Inc.



GOHI CULVERT MANUFACTURERS, Inc., Newport, Ky.

Denver Steel & Iron Works Co.
Denver, Colo.

A. N. Eaton, Metal Products
Omaha, Nebr.

Feenaughty Machinery Co.
Portland, Oregon

Lincoln Steel and Forge Co.
St. Louis, Mo.

The Newport Culvert Co.
Newport, Ky.

The Pennsylvania Culvert Co.
Philadelphia, Pa.

Roanoke Sales Corp.
Roanoke, Va.

St. Paul Corrugating Co.
St. Paul, Minn.

Tennison Brothers
Oklahoma City, Okla.

Tennison Brothers
Texarkana, Ark.

Capital City Culvert Co.
Madison, Wis.

Central Culvert Co.
Ottumwa, Iowa

MUNICIPAL AND CIVIC PUBLICATIONS

Prices when mentioned do not include postage unless so stated. Pamphlets, reports and free publications should be ordered direct from addresses given.

Sewerage and Sewage Disposal

By Leonard Metcalf and Harrison P. Eddy. McGraw-Hill Book Co., Inc., New York, 1930. 783 pp. $6.00.

This textbook, which is the second edition of the book originally published in 1921, has been almost entirely rewritten to make it more valuable as a textbook and to bring up to date its discussion of principles and practices. Professor Richard C. Tyler of the Massachusetts Institute of Technology and Professor Gordon M. Fair of Harvard University have done much valuable work in improving this already noteworthy volume, one author of which (Mr. Metcalf) is no longer living. The arrangement, especially in the portion of the book devoted to the disposal of sewage, has been considerably changed. The former chapter on cost accounting has been replaced by one on financial consideration. The basis of this book is the authors' three-volume treatise on American Sewerage Practice. The recent revision of Volume 1 of that work provided the greater part of the new material for the portion of this book relating to the design of sewers. Other new material has been taken from various sources, most of which are referred to in the text or listed in bibliographies.

Chemical Hazards of Modern Fire Fighting

Fire fighting has become a highly specialized profession and requires accurate technical knowledge of reactions of burning materials. Therefore, the Sebring, Fla., Fire Department has added to its Fire College Lecture Course a series on the above subject. The lectures, as delivered by H. K. Brown, B. S., Professor of Chemistry and Physics, State Teachers College, Minot, N. Dak., are issued in 48-page mimeographed form. (Apply to the author, Sebring, Fla.)

State Regulation of Public Baths, Swimming Pools, and Other Bathing Places

The *Journal* of the American Association for Hygiene and Baths, January, 1930, contains a 65-page section on the above subject. This includes a summary and comparison of regulations of all states with water-works practice, following the text of the regulations in different states. This issue of the *Journal* contains also interesting data on pool construction. 50c. (Apply to the *Journal*, 917 E. 47th St., Chicago, Ill.)

Survey of the Purchasing and Stores Department, County of Los Angeles

A recent study under this title, by the Bureau of Efficiency of the County of Los Angeles, has been abstracted by Albert H. Hall, Director, Schenectady Bureau of Municipal Research, and issued in 8-page multigraphed form by the Municipal Administration Service, 261 Broadway, New York. 10c. (Apply to the Service.)

Traffic Survey, Atlanta, Ga.

The Mayor's Traffic Commission of Atlanta, with the cooperation of the Safety Service, Policyholders' Service Bureau, Metropolitan Life Insurance Co., has issued a traffic study of 112 pages, with numerous inset charts, graphs, and tables. For some account of the organizing and planning of the work, the collecting and preparation of factual data, and the recommendations based thereon, see page 89 of this issue. (Apply to Policyholders' Service Bureau, Metropolitan Life Insurance Co., 1 Madison Ave., New York.)

Metal Partitions for Toilets and Showers

R-101-29, of the published series on Elimination of Waste Through Simplified Commercial Practice, of the Bureau of Standards, Department of Commerce, has the above title. It is a 16-page pamphlet illustrated with diagrams. The advantages of standardisation here, and the history of this specific project are set forth. 10c. (Apply to Government Printing Office, Washington, D. C.)

Philadelphia Hospital and Health Survey

By Haven Emerson, M. D., Sol. Pincus, C. E., and Anna C. Phillips. 1929. 844 pp. $3.00.

Public health surveys made by competent sanitarians are valuable texts on public health procedure and administration. This hospital and health survey of Philadelphia is a monumental piece of work, discussing with appropriate comment all aspects of health services and the organized care of the sick of that city. It should prove a valuable reference book for health and civic workers in other large cities. Copies of the report are obtainable at $3.00 each from the Treasurer of the Survey Committee, Richard L. Austin, Chamber of Commerce Building, Twelfth and Walnut Streets, Philadelphia, Pa.

JAMES A. TOBEY

A Handbook of the Mosquitoes of North America

By Robert Matheson, Professor of Entomology, New York State College of Agriculture, Cornell University. Charles C. Thomas, Publisher, Springfield, Ill. XVIII + 274 pp. Illustrated. $5.50 postpaid.

Professor Matheson has rendered a practical service to sanitary engineers and public health officers, as well as to biologists and others, in the preparation of this work. It gives a concise and complete account of native mosquitoes, with details for their identification, study, and control. Its use should go far towards stopping the annual waste of hundreds of thousands of dollars of public money said to be caused by oiling measures begun after the insect causing trouble has emerged. Chapter VI, on Mosquito Reduction, is of particular interest. It discusses types of control operations, natural enemies of mosquitoes, oiling operations, poisons, etc.

Musical Survey and Directory of Philadelphia, 1929; Report of the Bureau of Music, Philadelphia, 1929

At the close of its first year's activities, the Bureau of Music, Department of Welfare, Philadelphia, issued a comprehensive survey of the city's musical resources, with interesting historic background, in 60-page quarto form. The 14-page annual report of the Bureau is an impressive presentation of a pioneering municipality's achievements in musical promotion: music in education, music in welfare, community music, municipal music celebrations, and programs. (Apply to Mrs. Clara Barnes Abbott, Chief of the Bureau, Philadelphia, Pa.)

Extension of Metropolitan Parks and Parkways in the Metropolitan Region, New York

In a report of 20 pages, with large folded insert maps, the New York Metropolitan Conference on Parks, a joint municipal-state-civic body, submits to the New York City Board of Estimate and Apportionment a suggested program for development within the city; and to the Governor and the Legislature a suggested program for state activity. (Apply to M. L. Craner, Secretary of the Conference, Arsenal, New York City.)

Motorists' Manual

This miniature volume of 32 pages, issued by James A. Kearns, Clerk of the Municipal Court of Chicago, under the above title, has appeared in a 1930 edition. It provides the motoring public, in a concise way, with the important points of existing laws and police regulations pertaining to automobiles. 2c postage. (Apply to the Municipal Reference Library, City Hall, Chicago, Ill.)

Does the Death Penalty Deter?

The American League to Abolish Capital Punishment, 112 E. 19th St., New York, has issued a "Ten-Year Statistical Comparison," and a report on the status of capital punishment in the United States, together in a 16-page pamphlet. (Apply to the League.)

Canadian Good Roads Association: 1929 Proceedings

The sixteenth annual convention of this Association was held September 17-19, 1929, at Charlottetown, Prince Edward Island, with an attendance of delegates from every Canadian province, including premiers and highway ministers as well as road engineers, minor officials, councillors and laymen. The program included addresses on highway development in various provinces, highway finance, road construction and maintenance machinery, cement concrete, bituminous and gravel highway construction, secondary roads and their place in Canadian highway development, the trend in modern steel bridge design, grade separation policies, winter maintenance, highway safety, etc. 168 pp. (Apply to the Association, New Birks Building, Montreal, Que.)

Annual Meeting, National Association of Commercial Organization Secretaries

A volume of 500 pages contains the proceedings of the 15th annual NACOS meeting at Milwaukee, October, 1929, and includes, as have the volumes of former years, complete papers and discussions. Among many important departmental meetings reported are those on "Building and Operating the Average Chamber of Commerce," "State Chambers of Commerce," "Foreign Trade," "Serving the Retailer," and "Printing Problems." Membership lists are, as heretofore, included. (Apply to Wm. J. Russell, Secretary-Treasurer, National Association of Commercial Organization Secretaries, 24-16 Bridge Plaza South, Long Island City, N. Y.)

History of the Functions of the Municipal Court of Philadelphia

The Thomas Skelton Harrison Foundation, created to promote good government in Philadelphia, is financing the making and publication of a "Philadelphia Municipal Court Survey Series" prepared by the Bureau of Municipal Research of that city, the first volume of which has just appeared under the above title. The work is narrative and descriptive; it shows why the court was established, how it is organized, and what are its several functions, and it is intended to lay the foundations for subsequent studies which will appraise the effectiveness of the court's work. 102 pp. (Apply to the Bureau, 311 S. Juniper St., Philadelphia, Pa.)

Miami, on the Trade Lanes of Land, Water, and Air

Here is a community and industrial appraisal of a young but rapidly growing city. The text is well organized and is elaborately illustrated with photographs, maps and charts. The 30-page booklet in which it is presented is particularly well turned out. (Apply to Industrial Board, Miami, Fla.)

The Parole Problem

Governor Franklin D. Roosevelt, of New York State, in January, 1930, appointed a committee to study the parole problem. This committee has made, and presented in a 38-page booklet, a report which shows present parole operation in New York, state prisons and reformatories, and gives recommendations for improvement. (Apply to Sam A. Lewisohn, 61 Broadway, New York.)

The Social Work of the Churches

"A handbook of information" under this title has been edited by F. Ernest Johnson, and published by the Department of Research and Education of the Federal Council of the Churches of Christ in America. It contains 244 pages, and 8 chapters, in which are discussed the present social trends affecting religion, the way in which churches are adapting to changing social conditions, and social work of churches. One chapter is devoted to social pronouncements of the churches; another to a directory of general social agencies. Paper-bound, $1; cloth, $1.25. (Apply to the Federal Council, 105 E. 22nd St., New York.

CURB BARS CONTRACTION AND EXPANSION JOINTS

for Modern Concrete Roads

The necessity of providing joints in concrete roads for the elimination of irregular cracking is generally recognized. Truscon offers improved designs of two types of joints. The Truscon Air-Cushion Expansion-Joint is 100 per cent efficient, allowing the joints to close completely when the pavement expands. The Truscon Dowel Contraction Joint, due to its design, prevents adjacent concrete slabs from rising above each other.

Truscon Curb Bars become an integral part of a concrete curb, not only protecting the curb from abrasion but thoroughly reinforcing it against all shocks. Easily installed, economically priced, immediate warehouse delivery. Write for quotations.

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

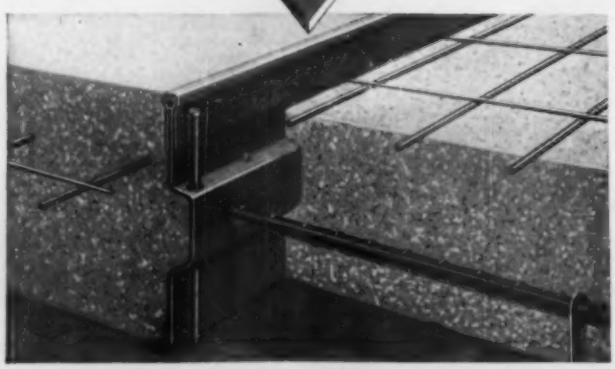
Truscon Steel Company of Canada, Limited, Walkerville, Ontario

Warehouses and Offices in Principal Cities

Truscon Air-Cushion Expansion-Joint—Type "A"—The metallic sides are formed around a continuous dowel plate

Truscon Air-Cushion Expansion-Joint—Type "B"—The metallic sides are straight and may be punched for the insertion of dowel bars

Truscon Curb Bars for reinforcing concrete curbs and protecting them from abrasion



Truscon Dowel Contraction Joint—interlocks adjoining slabs, preventing rise of one above the other

OTHER TRUSCON PRODUCTS

WELDED STEEL FABRIC
in flat sheets or rolls

and RIB BARS
for reinforcement

STEEL ROAD FORMS
for rapid construction

Readings in Contemporary Problems

Columbia University Press, New York. Vol. I, edited by Horace Taylor, 1929, 419 pp., $5.00. Vol. II, edited by Horace Taylor and Joseph McGoldrick, 1930, 839 pp., $7.50.

Although these volumes were prepared primarily for use in the second year of college, the selections are generally of such high caliber and absorbing interest, dealing maturely and frequently authoritatively with problems that must to some extent demand the attention of all public-spirited adults, that they may well be recommended to men and women concerned with municipal affairs. Volume I deals with matters that are chiefly of national or general interest—business, marketing, labor, farm relief, railroad regulation and consolidation, and trusts. Volume II, which has twice the number of pages and three times the number of excerpts, arranged according to related groupings, includes much of local interest, for after dealing with the development of law and the status of legislatures, courts and juries, it takes up the closer aspects of community life, with considerable space devoted to social responsibilities—housing, health, recreation, education, city planning, budgeting, etc.—which are largely the concern of the municipality. The various selections are from books, magazines, reports and official documents, and are in general thoroughly readable and stimulating.

Materials for the Study of Public Utility Economics

By Herbert B. Dorau. The Macmillan Co., New York. 1920. 1,002 pp. $5.00.

Mr. Dorau, who at the time of preparing this volume was Research Associate in the Institute for Research in Land Economics and Public Utilities and Associate Professor of Economics in the School of Commerce, Northwestern University, truly says in his preface that "public understanding of the utility industries still leaves much to be desired," and in giving his reasons for the book states, "Forward-looking utility companies are increasingly recruiting from among those trained in the *economics* of the industry and are actively assisting in providing such training for those already in their employ. In time the program for public utility education will bring results. To aid in achieving that end the collection and presentation of these materials was undertaken." The resultant compilation is a varied and well-ordered selection, useful to the casual or even the more profound student, with some background and discrimination or under a disinterested instructor. It is not surprising that the bulk of the material is from company sources, but it can hardly be claimed that the balance stated by the compiler to have been striven for has actually been attained. While much from rather strictly academic sources is presented, the considerable and growing volume of intelligent and able discussion of public utility matters from the public point of view has been very lightly drawn upon, notably in the chapter on valuation; and although an article by Dr. Delos F. Wilcox which presents advantages as well as disadvantages of public operation is included in the chapter on ownership, the editor was not willing to let it speak for itself without his own notations.

A Garden Book for Houston

Published by the Forum of Civics, Houston, Texas. 1930. 170 pp. $1.35.

Gardening is here localized and simplified for the people of Houston and for the city's neighborhood garden clubs, as a means of stimulating interest in the creation of many year-round, profusely blooming gardens such as the climate favors and such as are, altogether, a rich civic asset. (See page 106 of this issue of THE AMERICAN CITY.) The volume represents a high standard of attractiveness with its limp cloth covers, its gay end-papers, its well-designed pages (with a management of type which makes easy reading of even the voluminous charts), and its illustrations mostly in the form of photographs, rich-toned from the strong southern sunlight. It is a charming pioneer in a field worthy of wider cultivation.

Subdivision Guide

The city of Erie, Pa., through its Department of City Planning, has drafted and published a 4-page "Guide for the Laying Out and Development of Subdivisions." General Requirements for Subdivisions; Surveys; Plans; Certificates; and Procedure, are among the sections included; as are also references to existing state laws on city planning and zoning. (Apply to the Department, City Hall, Erie, Pa.)

Elements of Topographic Drawing

By Roscoe C. Sloane, C. E., Professor of Highway Engineering, Ohio State University; and John M. Montz, B. S. in C. E. Assistant Professor of Civil Engineering, Ohio State University. McGraw-Hill Book Co., New York. 1930. 188 pp. Illustrated. $2.75.

"Topographic drawing is the art of recording to scale, by means of conventional symbols, the topographic features of that part of the earth's surface which the map represents." A topographic map is composed largely of conventional symbols, distinctive in form and often of distinctive color. By its use a large mass of information pertinent to land planning, landscaping and other uses, is instantly available. This book affords the basis of a course of study in topographic draftsmanship, and includes details of the more elaborate use of symbolic drafting recently developed by the allied engineering industries. Chapters are devoted to Topographic Drawing, Conventional Signs, Topographic Mapping, Use of Color, Contour Sketching, Copying, Reproduction and Duplication, Suggested Office Practice, and Suggested Problems.

Comprehensive City Plan and Twenty-Year Program of Public Improvements for New Rochelle

New Rochelle is self-consciously on the eve of new and great development. Realizing that only a scientific city plan can properly guide that development, the Planning Board, with the aid of the Technical Advisory Corporation, of New York, has made a comprehensive development program. In published form, this is a remarkably detailed, elaborately illustrated document with sections on the general plan and program, housing and population, playgrounds and parks, schools and play yards, thoroughfare and transit systems, subdivision, airports, the city's appearance, and on a trial long-term capital budget and other matters of finance. 120 pp. in stiff boards. (Apply to the Planning Board, New Rochelle, N. Y.)

The Denver Plan, Vol. I

The first official report of the Denver Planning Commission, S. R. DeBoer, and McCrary, Culley, and Carhart, consultants, is published under date of December, 1929. It is a 64-page illustrated volume with folded inserted maps and stiff cardboard covers. It includes schemes for Major Streets; Parks and Boulevards; and Recreational Facilities. These are based upon population forecasts and studies of development trends, and have been made with appropriate regard for the city's past history. (Apply to Meta C. Anderson, Secretary of the Commission, Denver, Colo.)

The Place of the Apartment in the Modern Community

What kind of apartments are we getting? Are conditions favorable for making them as satisfactory as possible for living in? Are they assuming their share of the City's responsibilities? Is the city assuming its responsibilities towards apartments? These are among the questions discussed by Henry Wright, architect, in a 40-page illustrated article in *The Architectural Record*, March, 1930. This article is a particularly valuable contribution to the study of better living conditions in cities, especially since it goes on from easily demonstrable improvements in individual and group design to the design of the ideal city,—the "Attainable Ideal." 50c. (Apply to the magazine, 119 W. 40th St., New York.)

Greater London, Regional Planning Committee: a First Report

This report deals mainly with the question of open spaces, a proposed green belt, or belts, around London, and the control of sporadic building ribbon development on arterial roads in the region. Memoranda on these questions by Raymond Unwin, Dr. Tech., F.R.I.B.A., Technical Adviser of the Committee, are included in the report. Mr. Unwin's suggested remedies for putting control of road-town development in the hands of local authorities, and the analysis of the situation leading to need of such control, are of application on this side as well as that. The report is readable, and well illustrated. Its appendices contain a variety of information including special assessment practice in Kansas City, and practice in open area acquisition in certain continental European countries. See the next issue of this magazine. 5s. postpaid. (Apply to Knapp, Drewett and Sons, Ltd., 30 Victoria St., London, W. C. 1, England.)

Water Supply Control

A 118-page booklet, issued by the Division of Sanitation of the New York State Department of Health. It is by Charles R. Cox, assistant sanitary engineer in the Division of Sanitation. It deals with three main topics: (1) The Protection of Water Supplies from Pollution; (2) The Operation of Water Purification Plants, including processes of slow sand filtration, mechanical filtration, and chlorination, both by liquid chlorine and calcium hypochlorite, together with discussion of self-purification, chemical treatment of water, calculation of chemical doses and the question of tastes due to chlorination; and (3) Laboratory Control, which includes physical examination, chemical analysis, and bacteriological examination of water. There are three appendices relating to (1) control of filtration plants by the results of hydrogen ion concentration tests; (2) the mineral content of water and its bearing on hardness and alkalinity; (3) a list of laboratory equipment and supplies, with approximate prices. (Apply to Division of Sanitation, State Department of Health, Albany, N. Y.)

Roadside Improvement

Civic Comment, publication of the American Civic Association, in the issue of January, 1930, records progress in a whole group of states in the cleaning-up and developing of roadsides. "New Mexico Regulates Her Billboards"; "Kentucky Roused to Action"; "Illinois Plans to Obliterate the Billboard"; "Roadside Development in Connecticut"; and "Town Fights Destruction of Trees"—a news note from West Springfield, Pa. Secretary of the Interior Ray Lyman Wilbur is quoted on "Restoring Wayside Charm as a Task for the Future." "Too many of the old folks have become accustomed to disorder and grime and cheap junk architecture." (Apply to the Association, Union Trust Bldg., Washington, D. C.)

The Basic Elements of a City Plan for Kalamazoo

The Kalamazoo City Plan Commission, with Jacob L. Crane, Jr., Chicago planner, as consultant, has published a development scheme "in anticipation of the community's growth from a present population of 70,000 to a population of 140,000 in 1960. The—basic elements—as included in the study are railroads, major street plan, zoning, subdivision control, parks and parkways, school sites and playfields, local transit, and public buildings and the grouping of buildings. 40 pp, large quarto size, illustrated, and with folding maps. (Apply to the Commission, Kalamazoo, Mich.)

The Basic Elements of a City Plan for Aurora, Ill.

Individual differences in cities, and the individual problems presented in the planning of any city with due regard for its specific requirements, become interestingly apparent in an examination of this and the foregoing report, for both of which Jacob L. Crane, Jr., has acted as consultant. This report, based on a present population of 48,000, has been made with an eye to a potential population of 90,000 in 1960. In addition to provision for expansion along lines of utilitarian efficiency, it has detailed provisions for the conservation and enhancement of the city's extraordinary beauty. (Apply to the City Plan Commission, Aurora, Ill.)

The City Plan of Cedar Rapids, Iowa

An article by J. F. Rall, Mayor of Cedar Rapids, in *American Landscape Architect*, February, 1930, traces the progress of planning and zoning from beginnings made in 1908 to large present-day achievements, outstanding among which is the civic center. The article (4 pp., illustrated) is followed by "Notes on the Civic Center," by C. W. Baughman, landscape architect, of the planning firm of Harland Bartholomew. 50c. (Apply to the magazine, 608 S. Dearborn St., Chicago, Ill.)

Special Assessment Procedure

The first of a series of special reports of the New York State Tax Commission under a budgetary provision for additional research, which is being conducted in cooperation with four universities. This 272-page report, including ten chapters of textual treatment, an ample appendix giving charter provisions for local improvements, together with special assessment methods in 21 of the larger cities of New York State, and a bibliography, is further referred to at page 164 of this issue, where the chapter on "Summary and Recommendations" is reprinted. (Apply to State Tax Commission, Albany, N. Y.)

"They're Looking for Trouble" said the wise ones

Yes! and They're Still Looking for It

"They're just looking for trouble," said the wise ones, when Barber-Greene broke all traditions of ditcher design by building a machine with a vertical digging boom.

Today, five years later, Barber-Greene is still looking for trouble—but with reverse English.

Wherever we find trouble we find another prospect for a Vertical Boom Barber-Greene.

For the digging superiority of the Vertical Boom, coupled with the patented Automatic Overload Release, shows up in astonishing fashion on the work that spells t-r-o-u-b-l-e for conventional machines.

For example: You'll find Barber-Greenes walking through Florida's coral rock, through Texas' caliche, through New York State's rock-studded hard-pan, and even through macadam pavement.

These surprising performances of Barber-Greenes emphasize, as words can never, the digging ability of the Vertical Boom—the digging ability that establishes new, high daily footages, and new, low per foot costs.

So if you have trench to open check up on the Barber-Greene, the only Ditcher with the Vertical and Patented Overload Release.

It is looking for trouble—not to dodge—but to wade through in the interests of your job and pocketbook.

To check B-G performance ask us for a copy of "Ditching Snapshots and Records" which is crammed with actual job pictures, stories and costs on the ditcher that the wise boys said couldn't be built.

BARBER-GREENE COMPANY - - 515 W. Park Avenue, Aurora, Illinois

BARBER B STANDARDIZED MATERIAL HANDLING MACHINES G **GREENE**

The Establishment of a Uniform House Numbering and Street Naming System

A 3-page article by Edward F. Petersik, Chief Clerk, City Engineer's Office, Milwaukee, is published under the above title in *The Municipality*, January, 1930. It answers many of the questions presenting themselves to the city with an inadequate system now in use. 25c. (Apply to League of Wisconsin Municipalities, 114 N. Carroll St., Madison, Wis.)

Campaigning for Beautiful Streets

A 2-page article of this title recently appeared in the *East Side Chamber News*, New York City, and now appears in a 4-page pamphlet reprint form, as Supplement No. 1 to No. 3 of the East Side Chamber of Commerce Research Studies of Community Problems. It is devoted to a discussion of the legal aspects of architectural control for new and widened streets. Its author is Harry B. Brainerd, architect and city planner. See *The American City*, October, 1929, pp. 181 and 195. (Apply to the author, 681 Fifth Ave., New York.)

Safety First

The official journal of the National "Safety First" Association and Road Fellowship League (London), issue of January, 1930, contains a number of interesting and informative articles on safety organization progress in Great Britain. These include descriptions of the organization of a National Safety Week, to be inaugurated in May; a criticism of the safety provisions in the Road Traffic Bill now before Parliament, and street traffic accident statistics for part of 1929. Quarterly. 1 shilling per copy, net. (Apply to *Safety First*, 119 Victoria Street, London, S.W.1, England.)

Other Reports Received

AKRON, OHIO.—Annual Report, Chamber of Commerce, 1929. 84 pp.

CHICAGO, ILL.—Annual Budget Report, Chief Engineer, Sanitary District, for 1930. 92 pp.

FORT WORTH, TEXAS.—Two years of Council Manager Progress to September 30, 1929. 47 pp.

HAWAII TERRITORY.—Annual Report, Public Works Department, to June 30, 1929. 72 pp.

KALISPELL, MONT.—Annual Report, Water Department, 1929.

LOWELL, MASS.—Annual Report, Finance Commission, 1929. 60 pp.

PITTSBURGH, PA.—Industrial Development Report, Chamber of Commerce, 1929-1930. 8 pp.

RHINELANDER, WIS.—Annual Report, City Manager, 1929. 22 pp.

TORONTO, ONT.—Annual Report Assessment Commissioner, 1929. 38 pp.

Some Recent Books in the Field of Public Education

Public Education as Affecting the Adjustment of Youth to Life

National Industrial Conference Board, New York. 1929. 61 pp. $1.50.

Recognizing that there is a substantial amount of dissatisfaction with the output of our educational system on the part of business men, due in part perhaps to confusion as to its appropriate aims, the National Industrial Conference Board assembled a thoughtful committee of industrialists and educators to examine the bases of criticism. While the committee finds many of the alleged shortcomings fanciful rather than real, it declares that it is even more difficult to derive definite, concrete measures of the actual accomplishments of our public school system. It suggests, for example, that a normal fourteen-year-old emerging from the system should be able to read, write legibly, and spell simple English, perform simple operations in numbers, possess certain elementary knowledge of American history, geography, natural science, physiology and hygiene, be able to draw simple figures with some idea of perspective and proportion, have a simple development of musical sense and an understanding of the responsibility of citizenship in a democracy. But it finds only a beginning being made in the measurement of these attainments. It lists as the most important general needs: (1) measures of accomplishment; (2) studies of the educational requirements of occupational fields; and (3) an answer to the question: What is the best type of political control and financial support?

The Visiting Teacher at Work

By Jane F. Culbert, Secretary, National Committee on Visiting Teachers. Division of Publications, Commonwealth Fund, New York. 1929. 235 pp. $1.50.—The work of the visiting teacher with the child and the child's world, and the visiting teacher's professional relationships, are here discussed.

Business Administration of Public Schools

By Harry P. Smith, Professor of Education, Syracuse University and Director of Research for Syracuse Public Schools. World Book Co., Yonkers-on-Hudson, N. Y. 1929. 432 pp. $2.50. —"There is an insistent demand on the part of the public that education be administered according to sound business principles." Here is a method.

What to Tell the People About the Public Schools

By Belmont Mercer Farley, Ph.D. *Contributions to Education* Series, No. 355. Teachers College, Columbia University, New York. 1929. 136 pp.—Expert aid to the educator in developing and using a "Nose for News" technique, by the Assistant Director of the Educational Interpretation Division of Publications, National Education Association.

City School Surveys

By Hollis Leland Caswell, Ph.D. *Contributions to Education* Series, No. 358. Teachers College, Columbia University, New York. 1929. 130 pp.—"Essentially, the survey method is a part of a movement which is basing human thought and human conduct on facts objectively measured, rather than on assertion of authority." This is an interpretation and an appraisal of its use in one field.

A Citizenship Program for Elementary Schools

By Edith E. Beechel, Ph.D., Associate Professor of Education and Assistant Director of Teachers' Training, Ohio University. *Contributions to Education*, No. 335. Teachers College, Columbia University, New York. 1929. 174 pp. $1.75.—A presentation of the steps in the development of a citizenship program in elementary schools, and practical suggestions for developing such a program.

Commencement

By Gertrude Jones, A.M., Lincoln High School, Lincoln, Nebr. *The Extra Curricular Library*. A. S. Barnes and Co., New York, 1929. 117 pp. $1.00.—"School commencements are in a rut." Miss Jones tells why and what can be done to make them more interesting, more practical, and broader in scope.

Thrift Through Education

By Carobel Murphey, Vice-Principal, Thomas A. Edison Junior High School, Los Angeles, Calif. *The Extra Curricular Library*. A. S. Barnes and Co., New York. 150 pp. $1.00.—"Valuable material and tools for the Thrift Workshop which should find its place in the schools of the country."

Public School Administration

By Ellwood P. Cubberly, Dean, School of Education, Leland-Stanford, Jr., University. Houghton, Mifflin Co., New York. 1929. 710 pp. $350. —A revised, enlarged, and largely rewritten edition of a standard work in its field.

CONVENTIONS—WHEN AND WHERE

APRIL 2-5.—BOSTON, MASS.

American Physical Education Association. National convention. Secretary, Dr. J. H. McCurdy, Box G. Highland Section, Springfield, Mass.

APRIL 6-9.—DAYTONA BEACH, FLA.

Southern Commercial Secretaries Association; Florida Commercial Secretaries Association. Joint meeting. Chairman, Karl Lehman, Secretary-Manager, Orange County Chamber of Commerce, Orlando, Fla.

APRIL 10-11.—GAINSVILLE, FLA.

American Water Works Association—Florida Section. Annual meeting. Secretary, E. L. Filby, P. O. Box 135, Jacksonville, Fla.

APRIL 10.—KINSTON, N. C.

Eastern Carolina Chamber of Commerce. Annual meeting. Secretary, N. G. Bartlett, Kinston, N. C.

APRIL 14.—NEW YORK.

National Committee on Prisons and Prison Labor. Annual meeting. Secretary, Miss Julia K. Jaffray, 4 West 57th Street, New York.

APRIL 14-19.—MEMPHIS, TENN.

National Flood Control and Navigation Congress and Exposition. Address: R. E. Logsdon, Director of the Chamber of Commerce Convention Bureau, Memphis, Tenn.

APRIL 15-17.—SAVANNAH, GA.

American Water Works Association—Southeastern Section. Annual convention. Secretary, F. W. Chapman, Superintendent of Water Department, Camden, S. C.

APRIL 15.—NEWARK, N. J.

Eastern Safety Conference. Annual meeting. Manager, Fred M. Rossland, Newark Safety Council, 141 Halsey Street, Newark, N. J.

APRIL 17-19.—MISSOULA, MONT.

American Water Works Association—Montana Section. Annual meeting. Secretary, Herbert B. Foote, Division of Water and Sewage, State Board of Health, Helena, Mont.

APRIL 17-19.—OCALA, FLA.

Florida Engineering Society. Annual meeting. Secretary, R. L. Reed, Gainesville, Fla.

(*Continued on page 191*)

APRIL 20-27.—MEXICO CITY, MEXICO.

Highway Congress of Mexico. Third Congress. Secretary, Jose Rivera, Care of the Comision Nacional de Caminos, Nuevo Mexico 90, Mexico City, Mexico.

APRIL 23-24.—CHICAGO, ILL.

American Water Works Association—Illinois Section. Annual meeting. Secretary, J. J. Doland, University of Illinois, Urbana, Ill.

APRIL 24-25.—BUFFALO, N. Y.

American Water Works Association—New York Section. Annual meeting. Secretary, E. D. Case, The Pitometer Company, 50 Church Street, New York.

APRIL 24.—BATON ROUGE, LA.

Louisiana Chamber of Commerce. Annual meeting. General Manager, Herbert Bayliss, P. O. Box 486, Baton Rogue, La.

APRIL 25.—DALLAS, TEXAS.

Southwestern States Safety Conference. Executive Secretary, C. J. Crampton, Chamber of Commerce, Dallas, Texas.

NOTHING EXCELS

Westphalt
TRADE MARK

FOR

CITY MAINTENANCE WORK

The intersection of Woodard and Jefferson Avenues, Detroit, Mich., shown above, was repaved at night with WESTPHALT at a temperature of 15 to 25 degrees. For emergency or regular maintenance work it has no equal.

With WESTPHALT permanent hot asphalt patches or service cut replacements can be made at any temperature without a hot-mix plant.

The self-contained material can be carried in stockpiles indefinitely without setting-up or deterioration and is simply heated on the job at the time of laying.

For full information write

WEST PROCESS PAVEMENT COMPANY, INC.
LOUISVILLE, KENTUCKY

Branch Plant Offices—Richmond, Va., and Harrisburg, Pa.

APRIL 28-MAY 1.—WASHINGTON, D. C.
Chamber of Commerce of the United States of America. Annual meeting. Secretary, D. A. Skinner, 1615 H. Street, N. W., Washington, D. C.

APRIL 28-MAY 3.—LOUISVILLE, KY.
National League of Women Voters. Convention. Executive Secretary, Miss Gladys Harrison, 532 17th Street, N. W., Washington, D. C.

APRIL 29-MAY 1.—MINNEAPOLIS, MINN.
American Forestry Association. Annual meeting. Executive Secretary, Ovid M. Butler, 1523 L Street, N. W., Washington, D. C.

APRIL 30.—WASHINGTON, D. C.
National Association of Commercial Organization Secretaries. Mid-Year Banquet Meeting. Secretary-Treasurer, William J. Russell, Chamber of Commerce of the Borough of Queens, Long Island City, New York.

APRIL 30.—WASHINGTON, D. C.
National Association of State Chambers of Commerce. Convention. Secretary, George B. Chandler, Ohio State Chamber of Commerce, Columbus, Ohio.

APRIL 30-MAY 1.—BOSTON, MASS.
Massachusetts Safety Conference. Secretary, Lewis E. MacBrayne, 6 Beacon Street, Boston, Mass.

MAY 2-3.—PHILADELPHIA, PA.
American Academy of Political and Social Science. Annual meeting. Secretary, J. P. Lichtenberger, 3622-24 Locust Street, West Philadelphia, Pa.

MAY 5-8.—WASHINGTON, D. C.
American Red Cross. Annual convention. Secretary, Mabel T. Boardman, National Headquarters, Washington, D. C.

MAY 5-10.—WASHINGTON, D. C.
International Congress on Mental Hygiene. First Congress. Administrative Secretary, John R. Shillady, 370 Seventh Avenue, New York.

MAY 6.—MADISON, WIS.
Rock River Valley Safety Conference. Secretary, A. E. Gillett, Association of Commerce, Madison, Wis.

MAY 7-10.—MEMPHIS, TENN.
National Tuberculosis Association. Annual meeting. Managing Director, Dr. Kendall Emerson, 370 Seventh Avenue, New York.

MAY 7.—LOUISVILLE, KY.
Ohio River Valley Safety Conference. Manager, F. W. Rodenheber, 425 W. Market St., Louisville.

MAY 12, WEEK OF.—ATLANTIC CITY, N. J.
National Fire Protection Association. Annual meeting. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

MAY 13-15.—VALDOSTA, GA.
Association of County Commissioners of Georgia. Annual convention. Secretary-Treasurer, Fred Houser, 218 Wynne-Claughton Bldg., Atlanta, Ga.

MAY 13-14.—HAGERSTOWN, MD.
Maryland Water and Sewerage Association. Annual conference. Secretary, F. W. Caspari, 2411 North Charles Street, Baltimore, Md.

MAY 14-16—BUFFALO, N. Y.
Aeronautical Chamber of Commerce of America, Inc.—Airport Section. Airport convention. Manager, Homer Bennett, 300 Madison Ave., New York.

MAY 14-16.—WASHINGTON, D. C.
American Federation of Arts. Annual convention. Secretary, Leila Mechlin, Barr Building, Farragut Square, Washington, D. C.

MAY 14-15.—LAFAYETTE, IND.
Indiana Association of Chiefs of Police. Annual meeting. Secretary-Treasurer, A. G. Eversole, Superintendent of Police, 1123 Main St., Lafayette.

MAY 15.—WASHINGTON, D. C.
American Road Builders' Association. Meeting. Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.

MAY 20-23.—NEW ORLEANS, LA.
National Association of Public School Business Officials. Annual convention. Secretary, John S. Mount, Inspector of Accounts, State Department of Public Instruction, Trenton, N. J.

MAY 21-23.—WASHINGTON, D. C.
American Institute of Architects. Annual convention. Executive Secretary, E. C. Kemper, The Octagon, Washington, D. C.

MAY 21.—HARTFORD, CONN.
Connecticut Chamber of Commerce, Inc. Convention. Secretary, Clark Belden, 3 Lewis Street, Hartford, Conn.

MAY 27.—ERIE, PA.
Northwestern Pennsylvania Safety Conference. Secretary, S. M. Lippincott, Erie Safety Council, Commerce Building, Erie, Pa.

MAY 29-31.—ABILENE, TEXAS.
West Texas Chamber of Commerce. Annual meeting. General Manager, Homer D. Wade, Chamber of Commerce, Stamford, Texas.

JUNE 2-6.—ST. LOUIS, MO.
American Water Works Association. Annual meeting convention. Secretary, Beekman C. Little, 29 West 39th Street, New York.

JUNE 2-5.—BUFFALO, N. Y.
National Urban League. Annual meeting. Executive Secretary, Eugene K. Jones, 17 Madison Avenue, New York.

JUNE 3-6.—WASHINGTON, D. C.
National Conference on Weights and Measures. Annual conference. Secretary, F. S. Holbrook, Bureau of Standards, Washington, D. C.

JUNE 4-7.—BUFFALO, N. Y.
American Association of Museums. Annual meeting. Director, Laurence V. Coleman, Smithsonian University, Washington, D. C.

JUNE 5-6.—WASHINGTON, D. C.
Association of Community Chests and Councils. Annual meeting. Executive Director, Allen T. Burns, 1815 Graybar Building, New York.

JUNE 5-14.—DENVER, COLO.
General Federation of Women's Clubs. Meeting. Director of Headquarters, Miss Josephine Junkin, 1734 N Street, N. W., Washington, D. C.

JUNE 5-7.—PLAINVIEW, TEXAS.
Texas Commercial Executives' Association. Annual convention. Secretary, Paul T. Vickers, Midland, Texas.

JUNE 6-14.—BOSTON, MASS.
National Conference of Social Work. Annual conference. General Secretary, Howard R. Knight, 277 East Long Street, Columbus, Ohio.

JUNE 6.—BOSTON, MASS.
National Probation Association. Annual convention. General Secretary, Charles L. Chute, 370 Seventh Avenue, New York.

JUNE 7-12.—BOSTON, MASS.
International Association of Policewomen. Annual meeting. President, Mrs. Mina C. Van Winkle, 630 Louisiana Avenue, Room 3, Washington, D. C.

JUNE 8-14.—BOSTON, MASS.
National Community Center Association. Semi-annual meeting. Secretary, LeRoy E. Bowman, 403 Fayerweather Hall, Columbia University, New York.

JUNE 10-12.—BEAVER FALLS, PA.
Pennsylvania State Association of Boroughs. Annual meeting. Secretary, J. Herman Knisely, Harrisburg, Pa.

JUNE 11-13.—DULUTH, MINN.
American Water Works Association—Minnesota Section. Annual meeting. Secretary-Treasurer, Ronald M. Finch, 240 South Fourth Street, Minneapolis, Minn.

JUNE 11-13.—DULUTH, MINN.
League of Minnesota Municipalities. Annual convention. Executive Secretary, Morris B. Lambie, Chief, Municipal Reference Bureau, University of Minnesota, Minneapolis, Minn.

JUNE 16-20.—SAN FRANCISCO, CALIF.
National Electric Light Association. Annual convention. Secretary, A. Jackson Marshall, 420 Lexington Avenue, New York.

JUNE 17-19.—DENVER, COLO.
International Association of Comptrollers and Accounting Officers. Convention. Secretary, Carl H. Chatters, City Auditor, Flint, Mich.

JUNE 17-20.—LINVILLE, N. C.
National Conference on State Parks. National conference. Executive Secretary, Herbert Evison, 905 Union Trust Building, Washington, D. C.

JUNE 18-20.—WASHINGTON, D. C.
Conference of State and Territorial Health Officers with the United States Public Health Service; joint meeting with the Conference of State and Provincial Health Authorities of North America. Address: Surgeon General, U. S. Public Health Service, Treasury Dept., Washington, D. C.

JUNE 21-28.—ON BOARD S. S. ARCADIAN; MONTREAL TO ST JOHNS, NEWFOUNDLAND.
Union of the Municipalities of the Province of Quebec. Annual convention. Secretary-Treasurer, T. D. Bouchard, 132 St. James Street, Montreal, Que.

JUNE 23-26.—SAN FRANCISCO, CALIF.
American Electric Railway Association. Convention. General Secretary, Guy C. Hecker, 292 Madison Avenue, New York.

JUNE 23-27.—TORONTO, ONT.
American Institute of Electrical Engineers. Annual summer convention. National Secretary, F. L. Hutchinson, 33 West 39th Street, New York.

JUNE 23-28.—LOS ANGELES, CALIF.
American Library Association. Annual convention. Secretary, Carl H. Milam, 86 East Randolph Street, Chicago, Ill.

JUNE 23-25.—DENVER, COLO.
National Conference on City Planning. Annual conference. Secretary, Flavel Shurtleff, 130 East 22nd Street, New York.

JUNE 24-27.—RUTLAND, VT.
New England Association of Fire Chiefs. Annual convention. Secretary-Treasurer, John W. O'Hearn, 99 Main Street, Watertown, Mass.

JUNE 29-JULY 3.—COLUMBUS, OHIO.
National Education Association of the United States. Annual meeting. Secretary, J. W. Crabtree, 1201 16th Street, N. W., Washington, D. C.

JUNE 30-JULY 3.—NEWARK, N. J.
Smoke Prevention Association. Annual convention. Secretary, Frank A. Chambers, 1411 City Hall Square Building, Chicago, Ill.

JULY 9-11.—TORONTO, ONT.
National Association of Real Estate Boards. Annual convention. Executive Secretary, Herbert U. Nelson, Straus Building, Chicago, Ill.

JULY 13-19.—PALO ALTO, CALIF.
Western School for Commercial Secretaries. Annual session. Manager, Leonard E. Reed, Chamber of Commerce Building, Seattle, Wash.

JULY 14-17.—LIEGE, BELGIUM.

JULY 18-19.—ANTWERP, BELGIUM.
International Union of Local Authorities. International Congress. General Secretary, E. Vinck, Rue de la Regence, Brussels, Belgium.

AUGUST 3-16.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. Annual session. Secretary, John N. Van der Vries, 607 First National Bank Building, Chicago, Ill.

AUGUST 4.—DULUTH, MINN.
International Association of Chiefs of Police. Annual convention. Secretary, George Black, Chief of Police, Wilmington, Del.

AUGUST 12-16.—DENVER, COLO.
International Association of Municipal Electricians. Convention. Secretary, H. N. Lang, P. O. Box 1864, Orlando, Fla.

SEPTEMBER 8.—HALIFAX, N. S.
International Association of Fire Fighters. Convention. Secretary-Treasurer, George J. Richardson, A. F. of L. Building, Rooms 105-106, Washington, D. C.

SEPTEMBER 9-12.—WINNIPEG, MAN.
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Fire Chief, Yonkers, N. Y.

SEPTEMBER 16-18.—QUEBEC, QUE.
Canadian Good Roads Association. Annual convention. Secretary-Treasurer, George A. McNamee, New Birks Building, Montreal, Que.

SEPTEMBER 24-27.—SAN FRANCISCO, CALIF.
International City Managers' Association. Annual convention. Executive Secretary, Clarence E. Ridley, 923 East 60th Street, Chicago, Ill.

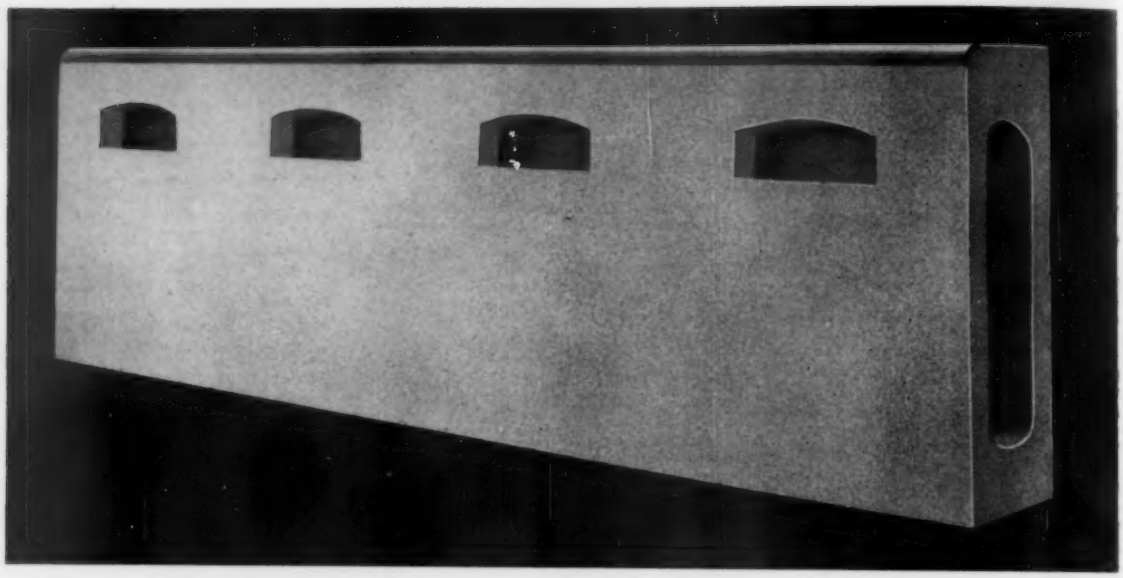
SEPTEMBER 29-OCTOBER 4.—PITTSBURGH, PA.
National Safety Council. Annual convention. Managing Director, W. H. Cameron, 108 East Ohio Street, Chicago, Ill.

OCTOBER 6-11.—ATLANTIC CITY, N. J.
Playground and Recreation Association of America. Annual convention. Secretary, Howard S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 13-17.—RICHMOND, VA.
American Society for Municipal Improvements. Annual convention. Secretary, C. W. S. Samuelman, 4359 Lindell Boulevard, St. Louis, Mo.

OCTOBER 19-22.—TULSA, OKLA.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, William J. Russell, Chamber of Commerce of the Borough of Queens, Long Island City, N. Y.

OCTOBER 27-31.—FORT WORTH, TEXAS.
American Public Health Association. Annual meeting. Executive Secretary, Homer N. Calver, 370 Seventh Avenue, New York.



Now! DRAINING CURBSTONE

Draining Curbstone is the biggest development of modern times in street drainage. It is much more practical and effective than the present method of draining at street corners. Draining Curbstone drains the entire length of the street. All the curb is converted into a drain.

It drains the street quickly after flushing and carries off all matter flushed against it that will enter the openings. Its use means no more filthy gutters—no more catch basin clogging—no more sewer back-ups. Cleaner streets at all times. Easier snow removal. Less motor car skidding. Uniformly even curbs. Substantial economies in street cleaning.

Draining Curbstone is made of best concrete mix, heavily reinforced with wire mesh. Sections are made to standard or special specifications, including rounds and under-driveway units. Precast under proper temperature. Uniform strength. Easily installed. Interchangeable with old-style curbing. No changes to sidewalk or roadway are necessary.

Franchises Open

Franchises are open for responsible parties in many parts of the country. There is a lot of profitable business here for live men. Write for our proposition.

Write for details and prices

Associated Engineering Development Corporation

25 West 45th Street
New York

LICENSEES UNDER A. R. VON KELLER PATENTS

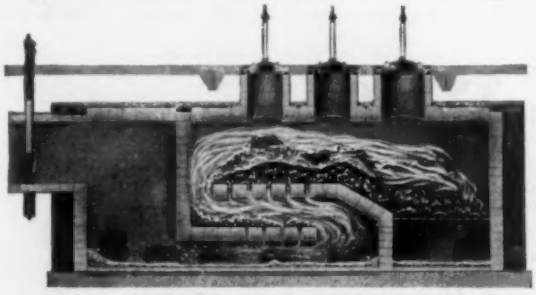
NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Incinerating Municipal Refuse

The Morse Boulger destructor, made by the Morse Boulger Destructor Co., 205 East 42nd Street, New York, is designed to effect the complete incineration of wet garbage or mixed refuse economically and without nuisance.

Garbage is charged and burned on a refractory hearth of fire-clay arches, a large hearth area being provided with a number of charging holes above it so that the garbage will be well distributed. A lower hearth provides additional area for the burning of garbage and serves as a baffle for lengthening the travel of the hot gases. Rubbish is burned on iron grates which are so located that all the hot gases from the rubbish must pass over and under the garbage. These grates are also adapted to the burning of solid fuels when there is a deficiency of rubbish. If oil or gas is to be used as auxiliary fuel, the burners are located at the end of the destructor above the grates.



MORSE BOULGER DESTRUCTOR, SHOWING PATH OF HOT GASES OVER AND UNDER GARBAGE

The shape of the destructor is rectangular, the length being three to four times the width. This narrow shape is well adapted to an economical type of building, particularly where several units are required or where a unit is to be added.

Access doors are placed along the front of the destructor to hasten the burning of garbage by occasional stoking and to permit the removal of cans and other incombustibles from the hearths, and ashes from the bottom of the destructor.

Charging holes for the rubbish and garbage are built into the top of the destructor, the number depending upon the length and capacity of the incinerator. The bell-shaped covers for the charging holes are counterbalanced and may be raised or lowered by a slight hand pressure. When raised, they offer no obstruction to the charging of refuse, but their position is such as to protect the operator against possible slipping into the hole.

Except for the charging and access doors, there are no moving parts in this incinerator, the iron grates being stationary.

In operation, all the hot gases from the rubbish or fuel pass over the garbage on the hearths. The transfer of heat from the gases is rapid because of the large exposed surface and shallow depth of the garbage. At the end of the upper hearth the gases are turned back beneath it by the curtain wall and lower hearth, thus increasing the time and distance in which heat may be transferred to the garbage. Large slots in the upper hearth aid in the transfer of heat and permit easy stoking of garbage to the lower hearth. At the end of the lower hearth, the gases are again turned, traveling back beneath it to a large settling chamber. Slots in the lower hearth aid further in the transfer of heat to the garbage on it, and permit ash to drop to the hot ash-pit below.

The supply of air is admitted through the iron grates on which the rubbish is burned, secondary air being admitted through ports in the side of the air chamber above the garbage. This air is drawn in through the air space between the lining and the outer wall of the destructor. The supply of air is controlled by adjustment of the ash-pit doors below the rubbish grates or by the counterbalanced guillotine damper in the flue connection.

Semi-Vehicle-Actuated Traffic Control Signals

The Electro-Matic traffic control system, which is completely actuated by the vehicles at cross streets, is now well known in cities throughout the East. In order to take care of intersections of major streets or through highways with minor cross roads or side streets, the Automatic Signal Corporation, New Haven, Conn., has developed the semi-vehicle-actuated Traff-O-Matic unit. With this installation, traffic on the main highway is allowed to flow continuously when there are no vehicles on the cross street or side road. When vehicles on the cross streets pass over the detector, the control transfers the green light to the cross streets long enough for the vehicles to pass. The controller is so arranged that the cross streets cannot hold the right-of-way for more than a fixed portion of the time without the right-of-way's being again transferred to the main highway for a fixed period. In the case of continuous traffic on the cross street, the time is divided in a set ratio between the main highway and the cross street. This ratio may be varied at will.

Heltzel Appoints New Manager of Sales

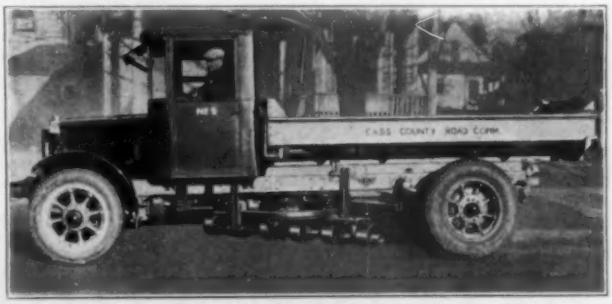
The Heltzel Steel Form & Iron Co., Warren, Ohio, has announced the appointment of B. M. Clark as Manager of Sales, to succeed W. J. Savage, who recently resigned. Mr. Clark has been Assistant Manager of Sales for Heltzel for several years.

Spring Scrapers for Maintaining Earth, Gravel or Cinder Highways

For maintaining earth, gravel, or cinder highways, Root Giant hydraulic reversible spring scrapers, made by the Root Spring Scraper Co., Kalamazoo, Mich., will cut maintenance costs and keep the surface of the road in good condition. The operating speed of these scrapers is 8 to 15 miles per hour. The scraper can be adjusted to any angle, or reversed to carry the material left or right. The usual method is to carry the material from the side of the roads to the center, and then reverse the scraper and carry it from the center to the edge. A concave cutting blade, sharp on both edges, is recommended for earth or clay roads, while a flat blade is recommended for gravel and cinder roads.

The operator, from his position at the steering wheel, forces the blade down to the road surface with a small hand-operated hydraulic pump located conveniently on the footboard of the truck. The amount of pressure is indicated by a gage mounted on the truck instrument board. To reduce the pressure or raise the blade, the operator merely opens the release valve on the pump.

The No. 8 scraper with an 8-foot blade is recommended for use on 2-ton trucks, while a No. 10 or No. 12 with blades 10 or 12 feet long, respectively, are best for use with trucks of 2½ tons or more capacity.



A ROOT GIANT SPRING SCRAPER USED ON A TRUCK OWNED BY THE CASS COUNTY, MICH., ROAD COMMISSION

Showing the World...

Something New in Performance

From a standing start at the foot of this 50 per cent grade, the Six-Speed Special takes a capacity load to the top, backs half-way down, and then goes up again.

The celebrated Six-Speed Special has shown the world something new. It has become a remarkable best-seller among trucks through its outstanding performance. The better a man knows trucks the more enthusiastic he is when this sturdy International does its stuff before him. The fifty per cent grade shown in the picture above is easy for the Six-Speed Special. We want an opportunity to translate this performance into your toughest going under heavy loads.

The Six-Speed Special is the original heavy-duty speed truck with two complete power ranges. It has a low range for the most difficult roads, for plowed fields, sticky gumbo, and steep hills, and a high range for speed on the highway. It has sturdy members throughout, good looks, and 4-wheel brakes. It runs and steers and stops to just about perfection. There are bodies for all types of loads. Ask us to give you a demonstration.

In addition to the Six-Speed Special the International line includes the Special Delivery for loads up to ¾-ton; 4 and 6-cylinder Speed Trucks of 1¼, 1½ and 2-ton sizes; Heavy-Duty Trucks ranging from 2½-ton to 5-ton sizes; Motor Coaches, and McCormick-Deering Industrial Tractors. Sold and Serviced by 176 Company-owned Branches in the United States and Canada, and dealers everywhere.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)
606 So. Michigan Ave. Chicago, Illinois

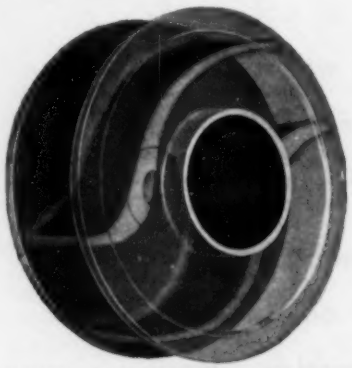
INTERNATIONAL TRUCKS

New Glass for Westinghouse Street-Lighting Units

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has recently developed a glass, known as Opalax, which will supersede both the light and the dense alabaster glass in Westinghouse street-lighting units.

Street-lighting globes made from Opalax glass are of homogeneous construction, the Opalax itself being a strong glass of high tensile strength. It is manufactured in a single standard of opacity which assures uniformity of all the globes in an installation. Moreover, because of the homogeneous construction, glass manufacturers can make the individual globes uniform in appearance. The medium degree of opacity chosen as the standard for this glass is one which fulfills all the requirements of street-lighting service. The glass is diffusing, but permits the effective use of refractors where these are deemed expedient.

The gleaming white light of the lighted Opalax globe imparts a fresh and lively appearance to the street and when the glass is blown into globes embodying a rectilinear pattern, it emits an animated sparkle which adds to the appearance of the installation.



X-RAY VIEW OF THE NON-CLOG TYPE OF IMPELLER USED IN WEIL NON-CLOG EJECTORS

Dry Basin Type Sewage Ejectors

For handling raw sewage without the use of screens or strainers in municipal and other large sewage-disposal plants, the Weil Pump Co., 215 West Superior Street, Chicago, Ill., has developed the Weil Type MCN non-clog dry basin type sewage ejector. These pumps have passed the most severe tests to determine the extent of their non-clogging ability.

The pump casing is made of semi-steel and is provided with standard flanged suction and discharge connections. The upper part which carries the shaft and bearings is removable from the volute of the casing to permit easy access to the interior of the pump without disturbing the piping connections. It is also provided at the bottom with a removable suction plate, to which the suction piping is connected, which covers an opening through which the impeller may be removed. The impeller is made of cast bronze, machined and balanced, the back flange being provided with a long hub, accurately bored and keyed to the shaft and held in place by a lock nut.

The pump shaft is made of alloy steel turned and ground and is protected in the pump by a tubular steel casing which supports the ball-bearing housing. The lower bearing is made of special heavy-duty bearing bronze of the sleeve type and is very long and grooved to distribute the grease, forced into it by an Alemite gun, throughout the length of the bearing. The ball bearing is of the heavy-duty angular contact type of ample size to carry the weight of the shaft and impeller and is mounted in a dust- and moisture-proof housing, which is provided with a large oil well.

The extension shaft, which is of carbon steel, is furnished in any overall length to suit the depth of pump pit. It is usually made in sections of not over 10 feet and coupled together by steel split compression couplings keyed to the shaft, making the task of installation simple.

This type of pump is usually controlled by an automatic switch actuated by a float mechanism, the float being made of heavy-gage copper, Zeppelin shaped and ribbed. It is guided in a steel or cast iron pipe which is fastened in the wet pit. A brass float rod which runs through the center of the float is counterbalanced by a weight supported by a brass chain running over a pair of pulleys fastened to the ceiling of the pump room. The float switches are mounted on the wall or on stands and are actuated by buttons attached to the float chain.

Safe Enjoyment for Many Children

Constructed of especially selected, smooth steel tubing, galvanized inside and out by the hot process, providing a durable rust-proof finish, the Junglegym, made by the Playground Equipment Co., 68 Duane Street, New York, makes it possible for a large number of children to safely play in a small space.

The corner uprights and braces of this piece of playground equipment are of 1¾-inch outside diameter, and the climbing bars and inside uprights are of 1-inch outside diameter. The spaces are 2 feet square. There are 278 horizontal climbing bars, 18 of which can be used for turning bars. These turning bars are 30 inches above the ground, and there are 8 chinning bars with a clearance of 4 feet 6 inches. Two horizontal ladders, 16 feet long, with rungs 2 feet apart, are available to give class exercises in chinning and traveling. The ladders give the same exercise as traveling rings.

The largest Junglegym, known as No. 1, is 16 feet 8 inches in length, 8 feet, 4 inches wide, and 8 feet, 6 inches high, with a center tower 10 feet 6 inches high. The shipping weight is 1,450 pounds.

The next smaller size is 10 feet, 5 inches square, with terrace construction heights of 6 feet 6 inches, 8 feet 6 inches, and 10 feet 6 inches. Packed for shipping, it weighs 1,050 pounds.

THE JUNGLEGYM IN USE

The No. 4 size is 8 feet 4 inches square and 8 feet 6 inches high, with a 10-foot 6-inch tower, weighing 850 pounds.

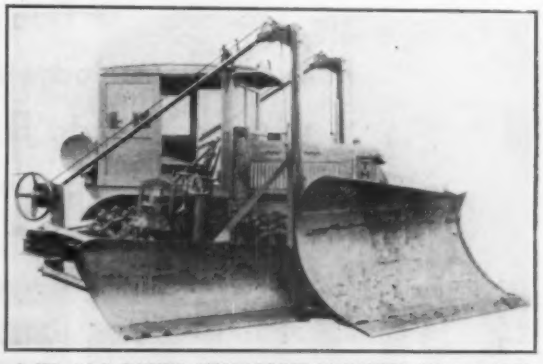
The Junglegym Junior, which is designed for home and kindergarten use, is made of selected woods and finely finished. It is 6 feet 8 inches long and 5 feet wide, the outside height being 6 feet, or 7 feet 8 inches with the tower. The spaces are 18 inches square. This size weighs 175 pounds packed for shipping.

This size is also made of galvanized pipe and can be supplied in portable form to set on the surface, or in stationary form for installation in concrete.

Tractor Snow-Plow Improved

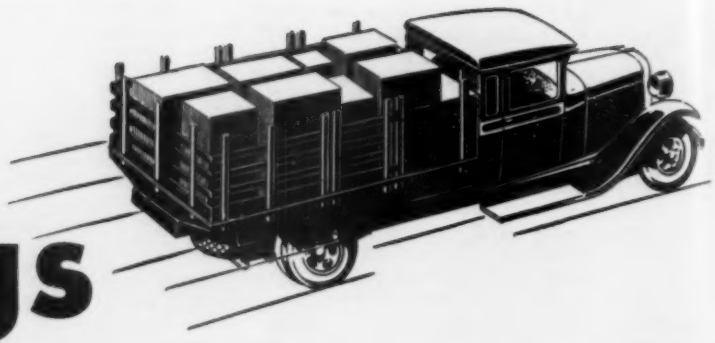
The Baker Manufacturing Co., Springfield, Ill., has recently announced important improvements over previous models of the No. 30-A Baker snow-plow for use with the Caterpillar Thirty tractor.

It is no longer necessary for the operator to step down from the cab and raise the plow by mechanical winches, as the new model is equipped with a hand-hydraulic pump and ram that is easily operated from the tractor cab. The plow is carried on the tractor in a much simpler manner by roller chains connected to the hydraulic ram and to brackets on the side of the tractor. The side wings are raised by means of two high-speed winches to a height of 3½ feet.



A NO. 30-A BAKER SNOW-PLOW MOUNTED ON A CATERPILLAR THIRTY

More savings per load hauled



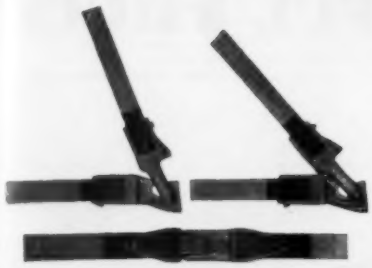
There is a compelling reason for the universal use of Dodge Trucks—a compelling reason why thousands of public officials recommend them—a compelling reason why one will be a safe investment for you . . . These workers haul at low cost and therefore increase the savings of their owners.

How Dodge Trucks lower hauling costs is noonday clear to users. They are speedy in get-away and on the open road—they are time-savers. They are dependable—work faithfully with the minimum of time off and minimum need for upkeep. They serve at low cost and serve long. They are good-looking—goodwill builders. They please drivers by their comfort and performance—increase driver efficiency.

For proof that a Dodge Truck will lower your hauling costs, see your Dodge Brothers dealer. Inspect the type that fits your needs. Buy it complete with body. Count on greater savings per load hauled.

DODGE TRUCKS

When you write for that catalog, kindly mention THE AMERICAN CITY.



THE 120-DEGREE JUNIOR SPECIAL FOR SEWER OR CONDUIT WORK

New Type Sewer and Conduit Rods

After exhaustive research and experimentation, the Turbine Sewer Machine Co., 5210 State Street, Milwaukee, Wis., has developed a new type of sewer and conduit rod with a new coupling that hooks at a 120-degree angle and is positively locked at 118 degrees. These rods have the flexibility of chain and can be hooked on top, snaked into the manhole and pulled out and unhooked on the street at the other end.

This rod is made in two sizes, the 120-degree Junior special, a small type, 1 inch by 1 inch in either 3- or 3½-foot lengths for either sewer or conduit work, and the 120-degree Senior special, a large type, 1½ x 1⅝ inches in 3- or 3½-foot lengths for sewer work. The wood used is a straight-grained, kiln-dried, carbolineum-dipped Oregon fir, which will not warp and will float in about 2 inches of water in the Senior type of rod. Special lengths of these rods can be furnished at slight extra cost.

With these new additions, the company now makes five distinct types of rods.

Trackson Appoints New Distributors

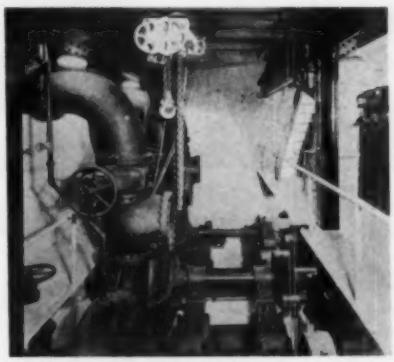
The Trackson Co., Milwaukee, Wis., has recently announced the appointment of the J. D. Adams Co., Indianapolis, Ind., to handle Trackson equipment for McCormick-Deering tractors in the territory included in the Indianapolis, Fort Wayne, Richmond, Terre Haute and Evansville, Ind., branches of the International Harvester Co., as well as the Louisville, Ky., branch.

McCarthy-Jones & Allen Co., Inc., Nashville territory, and the Option Equipment & Supply Co., Mt. Oliver Station, Pittsburgh, Pa., for the Pittsburgh territory.

A New Storm-Water Pumping-Station in Los Angeles

The new storm-water pumping-plant recently placed in operation in the city of Los Angeles in the Venice district is one of the most complete plants of its kind on the Pacific Coast. It is expected to solve completely and satisfactorily a problem which has been bothering the city for years and to which engineers have devoted considerable time and study. Actual construction work on the project has been under way for over two years, necessitated by the vast extent of the work involved.

The former drainage canals utilized prior to the installation of this plant, were all filled in and made into broad, level streets, which materially enhance the beauty of the district as well as greatly facilitating the movement of traffic. The pump installation is composed of a battery of three 14,000, one 6,000, and one 2,000 g.p.m. centrifugal pumps made by Fairbanks, Morse & Co., Chicago, Ill. These are individually motor-driven through the media of American high-speed chain drives made by the Union Chain & Manufacturing Co., Sandusky, Ohio. The motors are automatically float-controlled, so that one or any number of pumps may work singly or in unison, as required. Thus, the total capacity of the installation attains 50,000 gallons per minute when necessary.



INTERIOR OF THE VENICE DISTRICT STORM-WATER PUMPING-STATION, LOS ANGELES, SHOWING SOME OF THE FAIRBANKS-MORSE PUMPS

A Fire-Alarm Box with Few Parts and Sturdy Construction

Realizing that a fire-alarm signal box must be simple in operation, enduring and reliable, the Horni Signal Manufacturing Corporation, 515 Greenwich Street, New York, has developed a new box which has very few parts, is sturdy in construction, and as nearly fool-proof as apparatus of this type can be made.

As the aluminum alloy used for the box castings is made from a special formula, the metal, while retaining the color and weight of aluminum, has greater tensile strength and ductility than aluminum and does not discolor or disintegrate from the action of the elements.

For simplicity and speed of operation the single-action lever with the spade type handle has been adopted. It is necessary that the call be transmitted clearly and without confusion, so the box must be of the non-interfering type, and it is evident that as all calls must be registered, all boxes on a given circuit must be of the succession type so that one call after another may be registered as the boxes may be pulled.

The movement has been given particular attention with the result that fewer parts are employed, thus reducing causes for trouble. It is so constructed that 40 rounds, or 10 complete 4-round calls may be transmitted, in addition to which 2 more rounds are obtained after the 40 rounds have been used. This is provided with the idea that when less than four rounds are registered, the central station will know that the particular box sending an alarm must be rewound. The movement may be rewound at any time, even during the transmission of a signal, which will not be disturbed or distorted in any way by the winding.

A device attached to the winding shaft prevents overwinding and prevents the main spring from running down completely, thus insuring proper spring tension and constant speed at all times. The main spring is completely enclosed in a brass housing, preventing the evaporation of lubricant or any possibility of the accumulation of dirt or dust on or between the layers of the spring.

The movement, enclosed in a glass shell through which no moving parts project, is attached to the back of the door of the inner box, the door being fitted with extension hinges so that when opened all parts are visible and inspection can be made without exposing the movement to the atmosphere. For making adjustments, the glass cover can be taken off by releasing two wing nuts and without removing the movement from the box.

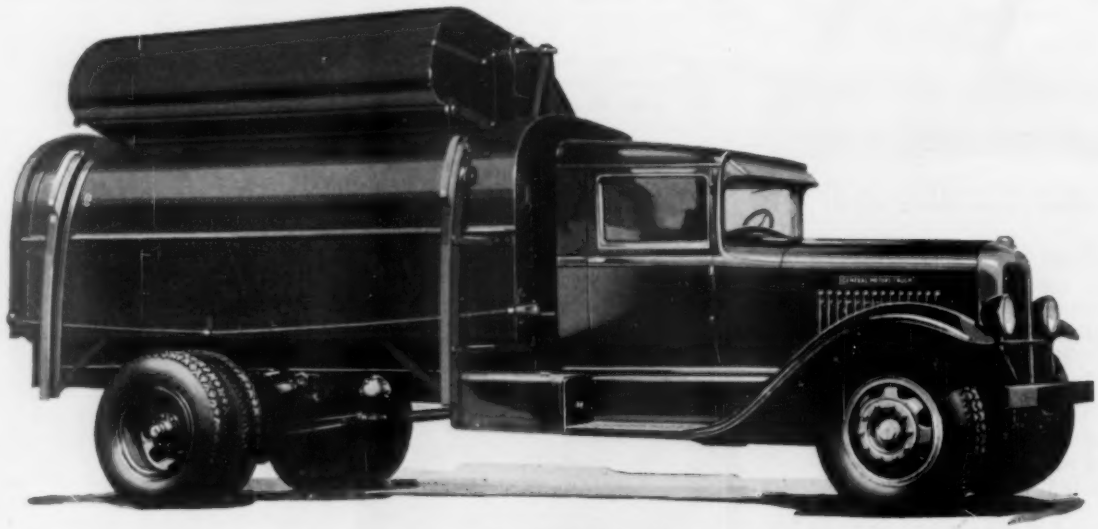
A positive mechanical action closes the circuit whenever the movement stops, and also when the movement is completely run down, leaving all other boxes in the same circuit unaffected and the circuit operable from any other point, even though one or more boxes may be completely unwound. The shunt contact is of a sliding type operated by the lever which trips the movement, fitted with a chromium-plated split finger spring contact, insuring good contact at all times and eliminating all possibility of frozen contacts due to corrosion or excessive arcs.

Mounted on the rear or inside of the door of the outer shell is the mechanism for operating the trip lever of the movement and the reset hook, the local box gong and the clock movement for sounding this gong. This movement is enclosed in a brass shell for protection, and all parts are of rolled bronze of heavy section and intended for hard service.

The Horni fire-alarm box can be installed in circuit with, and will operate with, any other modern fire-alarm box of any manufacture.

THE NEW HORNI FIRE-ALARM BOX

THIS RUGGED, POWERFUL TRUCK



$3985—4 TON RANGE

Model T-82 B
Price, Chassis Only, F. O. B. Pontiac, Mich.

THIS model comes in four wheelbases—155″, 167½″ (illustrated), 185¼″, and 201″—and 12 different tire combinations. Chassis prices vary according to wheelbase and tire equipment. Straight Rating—22,000 lbs.—total gross weight including load. Standard gear ratio 10.33 to 1. Optional (without extra charge): 9.00 to 1; 12.33 to 1. Five speeds forward, two in reverse.

. . . *Thrives on Tough, Hard Duty!*

THE GREAT, 94-horsepower, 6-cylinder engine in the General Motors Truck, Model T-82, gives it tremendous *tractive ability*.

You'll see it walk up out of a gravel pit, for example, with a smooth surge of power, while huge, awkward, old type trucks flounder and buck, wheels spinning, leaving a lot of tire mileage in the pit.

And its smooth, safe speed eats up the miles under load. It is a matter of actual record that this unit frequently does twice as much work as slow, obsolete vehicles still marketed for heavy duty. At savings of 50% *upward* in operating costs.

All performance and economy factors are in correct and absolute *balance*. There is brute strength throughout its construction—to match the power output of the engine.

Put it on the toughest job you've got and it will lick it *and keep it licked for years*.

The price passes on to truck users big savings resulting from the tremendous advantages of General Motors Trucks in volume production, large scale purchasing, and unusual resources.

SEE AND INVESTIGATE THIS GREAT LINE OF MODERN TRUCKS BEFORE INVESTING A DOLLAR IN NEW EQUIPMENT.

GENERAL MOTORS TRUCKS

TIME PAYMENTS, on any General Motors Truck, are financed at lowest rates available anywhere, through our own Yellow Manufacturing Acceptance Corp.
GENERAL MOTORS TRUCK CO., Pontiac, Michigan (*Subsidiary of* Yellow Truck & Coach Mfg. Company) GENERAL MOTORS TRUCKS . . . YELLOW CABS . . . COACHES.
Factory Branches, Distributors, Dealers—in 1500 principal cities and towns.

A MODERN TRUCK FOR EVERY PURSE AND PURPOSE

During April we hope you will remember to mention THE AMERICAN CITY.

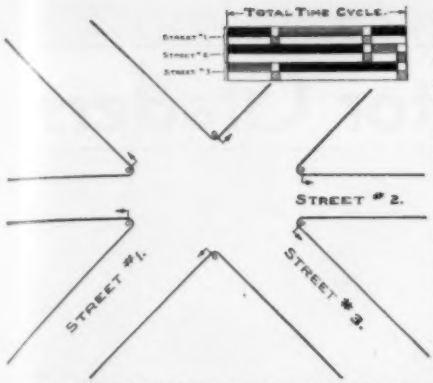


DIAGRAM OF THREE-STREET INTERSECTION, SHOWING THE TRAFFIC TIMING

A Three-Period Traffic Signal Timer

For points where three streets intersect, the Vario EF2 three-period traffic signal timer, which has been developed by the Eagle Signal Sales Corp., Moline, Ill., and which has a wide range of adjustments, is particularly adapted. Each street can be given an independent "go" period once every cycle. That is, when traffic is moving in both directions on Street 1, as shown in the diagram, traffic is stopped at Streets 2 and 3. The traffic change period is given preceding every change of traffic.

The timer can also be used to advantage for two-street intersections where there is an unusual amount of left-turn traffic, requiring a third time period. The timer is of the heavy-duty induction disc motor type and is quiet in operation, a fused main line dead-front tumbler switch being provided for turning on and off the system.

Each time period within the cycle is adjustable independently for a period of from 12 to 40 seconds, and the amber or traffic change period can be adjusted to come on one, two or three times during the cycle for a period of from 2 to 15 seconds.

The timers can be enclosed in aluminum weatherproof cabinets or can be mounted in any Harrington-Seaberg clearview signal pedestal base with the necessary brackets. All timers are equipped with hand control, designed so that no transfer switches are necessary, as the first operation of the hand control changes the signals from automatic to manual operation. All moving shafts are equipped with high-grade ball bearings.

This company has also developed a new three-period control and a four-period control which can be inserted in the Co-ordiplex flexible progressive system and which operates three or four streets of traffic in a similar manner to the EF2 Vario timer. The main advantage of the Co-ordiplex controller over the Vario control is that the Co-ordiplex can be hooked up in a progressive system, thereby keeping in step or time relation with the rest of the system.

THREE-STREET VARIO CONTROL MOUNTED IN ALUMINUM CABINET

Milwaukee Installs Mechanical Scavengers

A pair of novel machines which will clean sewer catch-basins as large as 4 feet in diameter and 9 feet deep in 10 minutes, even though they be filled full of refuse, have been added to the equipment of the Department of Public Works of the city of Milwaukee.

These Elgin Auto-Eductors, mounted on trucks made by the Four Wheel Drive Auto Co., Clintonville, Wis., will make it unnecessary for the city employees to go down into the sewers, and will eliminate the piles of unsightly muck along the curbs. Each unit consists of a water-tight body holding 1,200 gallons, or 6.2 cubic yards, mounted on a six-wheel truck with four-wheel drive on the front and first rear axles. The truck is equipped with ten tires to carry the enormous weight of the machine. When the Eductor is to be operated, the large tank on the truck is filled two-thirds full of water, a pump operated by a separate motor being connected with the body. On reaching the catch-basin, two telescopic pipes are lowered into the filth, and the pump is started, drawing water from the body and forcing it down into the catch-basin in one of the pipes. At the end of this pipe is an elbow fitted on the end with a nozzle which reduces the down-coming 3-inch stream to 1⅛ inches. The reduction in the size of the stream increases its speed and velocity and also creates a suction. Around the nozzle which points upward in the second telescopic pipe is a collar or opening which permits refuse to be sucked in. The suction created by the swiftly moving stream draws in the catch-basin refuse, which is immediately hit by the stream of water and forced upward in the pipe to the body or large tank on the truck.

This dirty fluid is carried to the rear of the body and released there. The dirt in the water settles to the bottom of the tank, and the water works its way through baffle-plates toward the front end of the body. Pumping is kept up from one catch-basin to the next until all the water in the tank has been displaced by muck and the tank is full of refuse. The unit is then driven to a dump and unloaded. On account of the bad roads in the dumping-grounds and the unusually heavy load to be carried, the four-wheel drive feature is very desirable.

ELGIN AUTO-EDUCATORS MOUNTED ON FOUR-WHEEL DRIVE TRUCKS FOR CLEANING SEWER CATCH-BASINS IN MILWAUKEE

MacElwee and Crandall, Inc.

The firm of MacElwee & Crandall, Inc., industrial and civil engineers, has just been established, with the head office at Cambridge, Mass. This firm specializes as consulting, designing and supervising engineers in port development, terminal facilities, city planning, airports, waterfront improvements, industrial surveys for cities and plant locations. Roy S. MacElwee and J. Stuart Crandall are the members of the firm.

Allowing for Expansion and Contraction in Concrete Roads

The exact amount of contraction or expansion that will take place in a stated volume of concrete per degree of temperature variance can be predetermined to some extent. It is known that an approximate allowance of at least 1 inch per 100 feet is necessary under an average winter-to-summer temperature range. The Corkin Joint, made by the Colphalt Co. of Ohio, Western Reserve Building, Cleveland, Ohio, can be compressed 44 per cent and will return to within 5 per cent of its original thickness within 24 hours, according to the manufacturers.

This joint is made to conform to all state, county and city specifications in standard thicknesses of ¼ to 1 inch and in widths from 4 to 12 inches. Its molded form imparts rigidity and yet retains the plastic characteristics of both cork and asphalt, its ingredients being practically impervious to moisture. It can be easily molded to the crown of the road, with no wash and no waste.

Practical Power for Motor Graders

Model LH Trackson McCormick-Deering is correctly designed for motor grader operation. Because of wide clearance between tracks and motor the grader frame can be mounted between them, thus insuring correct control and best results at the blade. Differential gears in rear end assure easy steering through front wheels of grader. No complicated clutch hook-ups necessary. No extra operations when turning. Corrugated track shoes provide ample traction without marring road surface. For unusual conditions one-bolt grouters can be quickly attached. No matter what grader you have or intend buying let us show you why Trackson Crawlers will improve its performance.

TRACKSON COMPANY

1310 South First St. Milwaukee, Wis.

TRACKSON
McCORMICK-DEERING

FULL CRAWLERS « BULLDOZERS « SHOVELS « LOADERS « CRANES « HOISTS

COOK TYPE WP DEEP-WELL TURBINE

A Self-Oiling, Weatherproof Turbine Head

The motor, motor base and base of the Cook deep-well turbine, Type WP, made by A. D. Cook, Inc., Lawrenceburg, Ind., are designed to give years of service, even if exposed to the elements, except that protection must be provided against sand storms.

The oiling mechanism is built into the turbine head, so that there are no unsightly oilers, and no chance for grit or dirt in the oil, no broken reservoir glasses, and no leaks. All that is necessary is to fill the reservoir, start the motor, adjust the sight-feed valve to the required flow, and the oiling system will act automatically. Since the oil reservoir is located directly beneath the motor, warm air is blown down on the oiling mechanism, making it more capable of withstanding cold and yet not heating it enough to affect the lubrication of all working parts during the summer.

There are five bases and three motor bases available, making combinations for 140 different heads. The three motor bases are adaptable for 28 different motors, developing 5 to 35 horsepower at 1,150 r.p.m., 5 to 50 horsepower at 1,760 r.p.m., and 5 to 50 horsepower at 3,450 r.p.m. These bases take a column up to 12 inches in diameter. Each base is a semi-steel casting with the discharge elbow cast integral with it, the discharge being flanged for standard pipe, and the desired size of companion flange being included in the price of the head. The top of the base is machined so as to make a male and female fit with the motor base, the bottom being recessed for the column.

The motor base is also a semi-steel casting, including the lower bell of the motor as well as the motor base and an oil reservoir of sufficient capacity for several weeks' running, and, in addition, houses the lower motor radial bearing and the oil pump. The motor bases are so designed that no matter what motors and bases are used with them, a head of graceful lines will result. The motor is a new type to meet present conditions in deep-well turbine practice. It is enclosed and asbestos-protected and has a large radial thrust bearing to take the thrust of the pump.

Blair & Marchant Carry on Consulting Practice

Blair & Marchant, Inc., 100 Crown St., New Haven, Conn., have announced that after March 1, 1930, they will carry on a general consulting and engineering practice in making examinations, appraisals and reports on the design and construction of water-supply, sewerage and drainage projects, wharfs and piers, topographic surveys, land developments, property line determinations, maps and record work.

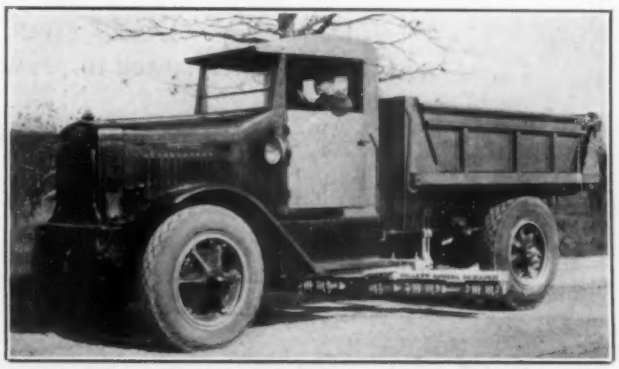
Clarence M. Blair and Orson H. Marchant, who have been associated for the past 25 years with the late Albert B. Hill, consulting engineer, have acquired Mr. Hill's records and files and will carry on his work.

A High-Speed Spring Scraper for Road Maintenance

The new 1930 model Willett spring scraper, made by the Willett Manufacturing Co., corner Ann Street and Turner Avenue, Grand Rapids, Mich., has a new type double torsion spring. While this new spring performs the same as the old type Willett spring, the new design permits the quick detachment of any one spring on the entire shaft without disturbing the rest of the springs or the shaft.

Another important feature of this new model is that instead of the hydraulic cylinder's being operated by means of a hand pump, it is controlled and operated by an electric-driven gear pump. This new electric unit is much faster and easier in operation, placing the maximum pressure against the blade within a few seconds, as well as releasing and entirely raising the blade very quickly.

The Willett spring scraper is a speed road maintenance machine for attachment to all sizes of motor trucks, and permits highway maintenance at speeds of from 10 to 15 miles per hour, thus maintaining from 75 to 100 miles of road surface per day. The double torsion springs used on this scraper are a most important feature for this type of equipment, as such a spring is essential for smooth maintenance at high speeds and allows the blade to pass over crosswalks, manholes and other irregularities without raising the blade.



A WILLETT SPRING SCRAPER MOUNTED ON AN INTERNATIONAL TRUCK

Simonds Joins Landscape Designers

Announcement has been made by Marshall G. Simonds of his entry into the firm of Simonds & West, landscape designers, 1101 Buena Avenue, Chicago, Ill. In addition to his general landscape practice, Mr. Simonds has been employed for over eight years as Superintendent of Parks at Green Bay, Wis., and by his design and superintendence has won for Green Bay the first prize for cities of over 25,000 population in the Playground Beautification Contest, conducted by the Playground and Recreation Association of America.

John Stewart Engineering Service

Colonel John Stewart, formerly a member of Black, McKenney & Stewart, consulting engineers, now dissolved, will engage in the practice of consulting engineering under the name of the John Stewart Engineering Service. Colonel Stewart's work will include consultation, research, investigation, reports, plans, estimates, representation, and supervision of river and harbor projects, port and terminal works, industrial, commercial and municipal projects, highways and foundations. His offices are at 1653 Pennsylvania Ave., N.W., Washington, D. C.

When you buy only on price, you can never be sure.

It's unwise to pay too much, but it is worse to pay too little.

When you pay too much, you lose a little money—that's all.

But when you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot. It can't be done.

If you deal with the lowest bidder, 'tis well to add something for the risk you run—and if you do that, you will have enough to buy quality.

REPRODUCTION OF A BLOTTER DISTRIBUTED BY A VALVE AND HYDRANT MANUFACTURER, EMBODYING SENSIBLE CAUTION AS TO THE DANGER OF MAKING PURCHASES ON THE BASIS OF PRICE ONLY

USERS HAVE SECURED MORE THAN THEY SOUGHT

Street cleaning officials want service from their equipment. Users of ELGINS enjoy service *plus* dependability and adaptability.

THE NEW ELGIN gives uninterrupted, dependable service in a manner suited to *present day street conditions.*

THE ELGIN CORPORATION

501 Fifth Avenue
NEW YORK

U. S. A.

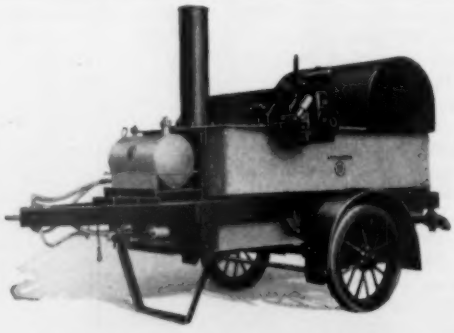
100 North LaSalle Street
CHICAGO

And in the
TRAIL-O-HEATER
Double Heat Circulation

No. 78-OB Trail-O-Heater, the best known of all Littleford asphalt kettles, was the first to have a Special LB Combustion Box giving *Double Circulation* of heat.

The heat from the LB Oil Burner is forced to rear of combustion box—baffles prevent heat from rising until it reaches far end of kettle—then it is drawn by draft up and to front of kettle and out vent back. You have controlled heat properly distributed over a wide heating area—rapid melting of material with no coking or flashing.

This construction has proved to be so successful in our large kettles (300 to 550 gallons) that we have announced the new No. 84-HD made in 110-, 165- and 210-gallon sizes with the same *Double Heat Circulation.* Better write for complete information about Littleford Double-Circulation Asphalt Kettles—you'll be under no obligation.



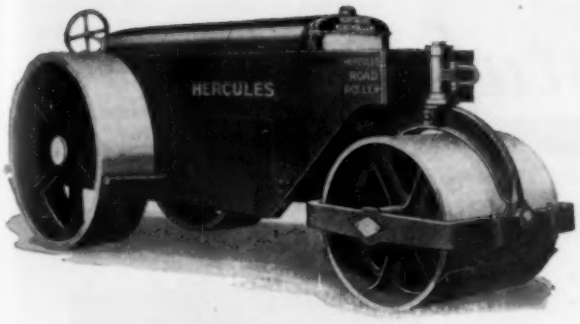
The 300-gallon Oil-Burning Trail-O-Heater No. 78-OB, shown, fitted with the new LB Motor-Driven Spray for driveway surfacing, penetration patch work and skin patching

N. B. *This is the third of a series of advertisements on Littleford Double Circulation Asphalt Kettles. Another one follows next month.*

THE SIGN OF A GOOD HEATER — LB — LITTLEFORD BROS. CINCINNATI, OHIO

LITTLEFORD
Road Maintenance Equipment
SINCE 1900

LITTLEFORD BROS. 500 E. PEARL ST. CINCINNATI, O.



A NEW ALL-STEEL ROAD ROLLER

An All-Steel, Three-Speed Road Roller

The Hercules 10 to 12-ton road roller, which is of steel construction throughout, extra-heavy and oversize in parts, and sufficiently rugged to withstand the service for which it is designed, has recently been developed by the Hercules Co., subsidiary of Osgood Co., Marion, Ohio.

The frame of the roller is constructed of steel, of extra-heavy steel plates 48 inches wide, reinforced with heavy continuous steel angles and a number of steel cross members, all hydraulically riveted. The plates and angles extend the entire length of the frame, the forward ends of the side plates being riveted to the front end alloy steel casting in which the king post is carried. The alloy cast steel transmission-differential case or housing sets between the two side plates and forms a brace between the plates. The rear end of the frame is reinforced to distribute and absorb throughout the frame any strain from towing equipment or dragging a scarifier.

The carriage carrying the front rolls and steering the roller, made of steel castings, is the gyroscopic type and consists of the king post, yoke, roller frame, axle and front rollers. Each front roller is 44 inches in diameter with a 22-inch face. They are placed side by side on a 3½-inch shaft, forming a continuous drum with a 44-inch face. Each roller revolves independently of the other, thus facilitating steering. The scrapers front and rear have adjustable blades with compression springs permitting any desired tension on the scraper blades, which are fitted below the center line of the front rollers to remove any adhering material before it has time to pile up on the roller frame.

The rear rolls are 68 inches in diameter with a 20-inch face. Cast integral with these rolls are the service brake drums. The face of the rim of these rolls is tapered to give the right contour or crown to the finished road. Reamed taper holes are provided to receive picks. Plugs are furnished for closing these holes when the picks are not in use.

The steering mechanism consists of a hand wheel at the right of the operator's cab and a shaft extending to the bevel gears mounted upon the steering worm shaft. Power steering can be provided when specified. The power steering drive is direct through metal to metal clutches with the gears and clutches in a dustproof case and operating in oil. All controls are conveniently located in the operator's cab. There is one lever for forward and reverse, one for stopping or starting the roller in either direction, one for each change of speed, one for locking the differential, a braking foot pedal and a brake wheel and an ignition switch, a starter and a lighting switch located on the dashboard.

The motor is of the heavy-duty type with 6 cylinders, a 4½-inch bore and 4¾-inch stroke, and develops 60 horsepower at 1,100 r.p.m. A Pierce governor permits a variable speed range either above or below standard speed. An oversize radiator provides ample water for cooling.

The Hercules is provided with two sets of brakes, service and emergency. One system operates upon a steel drum in the transmission through the medium of bronze shoes. The other system consists of a large and wide steel drum cast integral on each rear roll and having an approved brake lining on an external contracting band brake operating through a brake equalizer. These brakes effectively prevent the roller from getting away on a grade, and dispense with the necessity of blocking when working on hills, as well as facilitating the stopping and reversing required in road work.

Saine Succeeds Conrow with Central Foundry

The Central Foundry Co. has announced the appointment of Leonard W. Saine as General Manager of Sales for the Universal Pipe Division. Mr. Saine, who was the company's representative in the South for a number of years, succeeds Robert W. Conrow, and will make his headquarters at the general offices of the company in the Graybar Building, Lexington Avenue and 43rd Street, New York.

Haynes Stellite Co. Makes Appointments

The Haynes Stellite Co. unit of Union Carbide and Carbon Corporation, 205 East 42nd Street, New York, announced that at a recent director's meeting of the company, E. E. LeVan was appointed General Sales Manager and J. H. Maguire was appointed Works Manager. Other appointments were: F. T. McCurdy, Plant Superintendent; J. R. Brown, F. L. Second, and Everett Page, Assistants to Superintendent; and L. H. Brown, Research Engineer.

Reflecting Type Traffic Signs

In some states the use of reflecting signs is recommended, particularly for "Stop" and "Slow" signs. In the reflecting signs made by the Essco Manufacturing Co., Peoria, Ill., the command is lettered with studs or jewels, which provides maximum reflection either when the headlights are projected directly in the face of the sign or at an angle. While the coloring on these signs follows the recommendations of the American Engineering Council, red for the lettering and border with a yellow background, the use of the white reflecting stud is recommended since it is more plainly discernible at night than the red. This sign can be supplied in either the 18- or the 24-inch size and the "Stop" sign is provided with either red or white reflecting studs. The "Slow" sign is furnished with white studs only.

The sign itself is constructed of heavy gage metal with a combination enamel and lacquer finish on both sides. Suitable spindles are provided with each sign, making it possible to mount it by using two bolts or lag screws, and ample provision is made on the reverse side of the sign for protecting the studs.

This company also makes reflector letters which may be attached by means of bolts to any existing sign at a minimum expense, and generally without removing the sign from its present location. The castings containing the letters S, T, O, P, and R are 6½ inches long and 5 inches wide, including the fastening lugs.

See-Thru signs, in which the rays of light from a street light pass through the specially designed and patented lenses and throw a brilliant beam in a fan shape through the letters directly into the path of the approaching motorist, are another type made by the Essco Co. These signs can be used regardless of the height or location of the street lights, whether the lights are suspended from cables or mast arm, or are bracket-mounted or of the ornamental type. It is not necessary to place the See-Thru sign at any particular distance or angle from the street light, and it may be located at the curb line like an ordinary sign. The lenses in these signs are provided only in the crystal white, since the red lenses absorb too many of the light rays. This type of sign is provided only in the 20-inch size, to provide proper spacing of the lenses, a black panel being used across the center to provide contrast for the crystal white lettering for daylight visibility.

ESSCO SEE-THRU SIGN

The top and bottom spaces are yellow to form a background for the black lettering

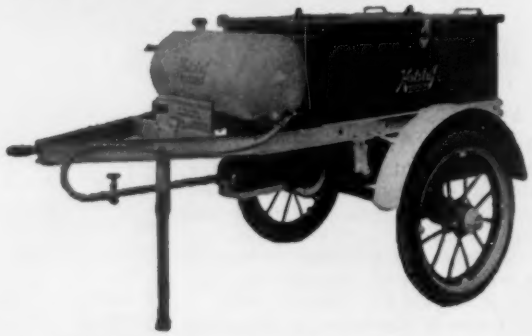
Hotstuf

TRADE MARK REG.

Test HOTSTUF Heaters with Other Heaters. . . . .

The Mohawk HI-SPEED TRAILER Tool Box

Compare HOTSTUF Heaters with other heaters. Test HOTSTUF Equipment, side by side, with other heaters and you'll quickly realize why HOTSTUF Heaters are the favorite Oil-Burning Asphalt Heaters. Ten years of pioneering development work . . . ten years of time-tested results . . . ten years of enthusiastic owner-and-user satisfaction have made HOTSTUF, the Master Oil-Burning Asphalt Heater. The HOTSTUF Patented Elevated Melting Chamber provides for at least 30 per cent greater melting capacity with 30 per cent less fuel.



Write for Catalog No. 12. It describes HOTSTUF Equipment in detail

Mohawk Asphalt Heater Company

52 Weaver Street - - - - Schenectady, N. Y.

Village of Grosse Pointe

January 7, 1920.

Just a few words about the action of your Model GLT-344 four wheel drive truck equipped with the V type snow plow as we observed it in action on the streets of this and the other Grosse Pointe Villages just recently on the occasion of the very heavy snow storm.

The snow was about twelve to fourteen inches in depth on the level average and many drifts were from two to five feet deep. We had cleared the streets free from snow but had left a windrow at the curb which was packed very hard and partially frozen, this being about six to eight feet in width and from three to five feet in height.

Your outfit had no difficulty in plowing this windrow down to bare pavement; operating in second, third and high speed in high gear range at a speed of from three to fifteen miles per hour. We were able to alternate using the heavy tractor and grader with which we had been doing this work prior to the arrival of your truck. It was not necessary at any time to use the low gear.

I operated the truck myself for a matter of nearly an hour and in this time cleaned up probably five miles of streets in the condition noted above. I have not yet seen any truck-plow that reached yours in real results and certainly recommend it to anyone.

Clerk.

FREEMAN 4 wheel drive TRUCKS

FREEMAN MOTOR CO.

DETROIT, MICH.

Water-polished Granite Concrete Lighting Standards

The new water-polished granite concrete street-lighting standards, developed and manufactured by the American Concrete Marbelite Co., 232 East Erie Street, Chicago, Ill., are the result of several years' research and experimentation by the company's engineers. Previously, many improvements indiscernible to the casual observer had been made, resulting in greater strength and permanency of the products, but it was desired to produce a self-cleaning standard which would always appear as spick and span as the day it was installed.

All granite concrete lighting standards, after being formed, have a film of tenacious cement which covers the entire column and hides the beauty, character and color of the stone used in the post. The old method of removing this film was to submerge the standards in a vat of dilute hydrochloric acid, and by chemical reaction the film dissolved without affecting the granite aggregates. While this method achieved the desired result, it left an etched surface upon which it was possible for dirt to collect. Realizing that few communities had the inclination to wash these standards, although a simple and inexpensive bath with dilute oxalic acid cleansed the posts with little effort, the company concentrated upon a column with surfaces of glass-like smoothness.

NEW WATER-POLISHED CONCRETE LIGHTING STANDARD

After numerous experiments with carborundum grinding machines, cutting wheels and cutting lubricants, the desired result was finally obtained. Each standard, after being aged to a predetermined strength, is individually ground by special power-driven carborundum wheels revolving at a high speed, to remove the film. A constant stream of water lubricates the post surface and aids the cutting process. Then fine polishing wheels are substituted for the cutting wheels, to produce the smooth, non-dirt-collecting surface of the new standards.

A careful inspection of several thousand standards with this new water-polished surface installed on heavily traveled streets has shown that the beauty of the standards, in which the black and white aggregates now appear so much brighter and more distinct, is assured indefinitely. While it is true that dirt and grime will still be splashed upon the standards, it is only loosely held and every rain washes it away.

Two New Types of Premolded Expansion Joint for Highways

Two innovations in premolded expansion joints have been announced by the Ohio Fibrated Asphalt and Rubber Co., 304 South Dearborn Street, Chicago, Ill. The Ohio expansion joint consists of the center reinforcing and an expansion core which puts resilient strength in the middle of the joint where it is most needed. Upon the resilient core are built on either side layers of heavily saturated asphaltic fiber structure, which give the plasticity element to the expansion joint.

The advantage claimed for this design of expansion joint is that the resilient core of heavily saturated felt readily takes up any expansion and contraction force before the movement of the concrete slabs can cause any flow of the bituminous material. Thus, the center core acts to take up the initial compression or expansion, giving time for the outside asphaltic layers to readjust themselves.

The outside layers of the joint have an unusually large asphaltic content, the composition being bituminous material, mineral matter and shoddy textile fiber, so balanced that the composition contains 75 per cent asphalt, approximately 15 to 17 per cent fiber, and from 8 to 10 per cent mineral matter.

It is a well-known fact that asphalt will penetrate and firmly engage any irregularities in the face of the concrete structure. This property acts for close coherence between the expansion joint and the concrete structure, which preserves the waterproofing qualities or, in other words, the tightness of the joint itself.

The other joint made of sponge rubber is compressible, plastic and truly elastic. The value of a truly elastic expansion joint is of interest, as it does not ooze or tend to creep out of the crevice; it waterproofs the crevice and, as the material does not flow, it makes a particularly advantageous cushion for the base slab of asphaltic and brick surfaces of concrete foundations.

The use of the sponge rubber joint is not confined to two-layer roads. This joint material is also adapted for use in structures which are exposed to expansion and contraction stresses due to temperature and moisture changes. This material comes molded to standard sizes, and is ready to use and easy to handle.

Portland Cement Association Appoints New District Engineer

The Portland Cement Association, 33 West Grand Avenue, Chicago, Ill., has announced the appointment of Walter R. Macatee as District Manager in charge of Association work in Virginia and North Carolina. His offices will be at 904 East Main Street, Richmond, Va.

For several years Mr. Macatee has been engaged in road promotion throughout the the southeastern states. During 1926 he was in charge of the district office at Jacksonville, Fla., and after a year's leave of absence because of ill health, took charge on January 15, 1928, of the district office at New Orleans, from which he is now transferred to Richmond.

Wood Joins Leadite

The Leadite Co., Inc., Land Title Building, Philadelphia, Pa., has announced that Theodore V. Wood, formerly with R. D. Wood & Co., has joined the sales organization of the Leadite Co.

New Okonite Sales Engineer

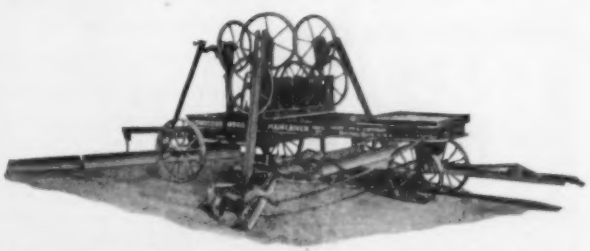
L. L. King, electrical engineer of the Atchison, Topeka and Santa Fe Railroad has resigned to take up new duties as Sales Engineer of the Okonite Co., 501 Fifth Avenue, New York, manufacturers of insulated wires and cables. Mr. King's headquarters will be in Chicago. His long experience with electrical installations in the railroad field has fitted him well for his selected work.

An Adjustable Road Maintainer

While not of great weight, the Success road maintainer, made by the Shunk Manufacturing Co., P. O. Box 37, Bucyrus, Ohio, is sturdily built for heavy-duty maintenance work. Its frame of 6-inch channel steel is thoroughly braced and riveted and the entire weight of the machine can be placed on the Twin-Dual blades, resulting in lack of vibration and allowing the blades to shear and plane the surface smoothly. A 15-30-horsepower tractor affords ample power for operation.

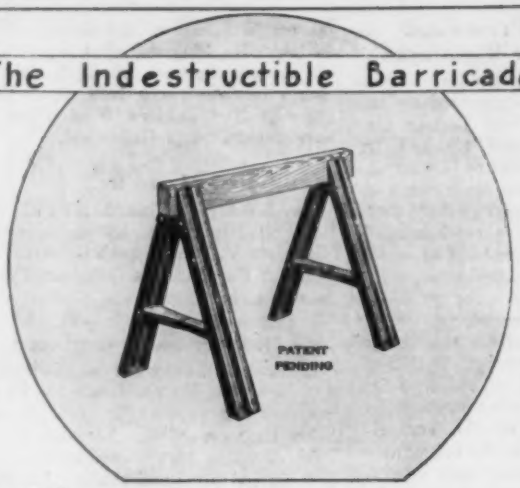
Each set of Dual blades is separately controlled by three large hand wheels, easily operated, to raise or lower the heel or toe or to draw them into the machine to a neutral position. The rear blade is also raised or lowered with its own hand wheel. Two additional adjustments offer varied positions for this blade, the large and roomy platform giving the operator access to all adjustments. All five blades are double-edged, extra-wide, high-carbon steel, reversible and interchangeable to all positions.

This maintainer is adjustable to any width of road, so that a 36-foot road can be worked in one round trip without disturbing traffic, and narrow roads can be worked in one trip. Shoulders or berms can be built and maintained without leaving the road proper. The front blade of the maintainer works the material across the road, filling up the low spots and cutting off the high spots in the hard surface beneath, and the second or float blade follows over the same surface and works the excess material over it again.



THE SUCCESS TWIN-DUAL ROAD MAINTAINER

The Indestructible Barricade



QUICKLY erected, using standard sized lumber, the TOLEDO Folding Steel Horse is rigid, strong and will outlast a dozen wooden horses. Folds compactly. Eight heights. 18 to 60 inches. Ask your dealer or write us for prices.

TOLEDO
Folding Steel
HORSE

TPS The Toledo Pressed Steel Co.
TOLEDO OHIO

Save with Steel

Look for this trademark on every bale:—

FAULTLESS FIBER
HUNTSVILLE
HICKORY
FOR STREET SWEEPERS

LIVE SPRINGY FLEXIBLE

Take a bunch of Huntsville fiber—tie it in a hard knot!

Does it break? No!

Give it the hardest kind of service in your street brooms—against the heaviest refuse—and the roughest pavements—*does it stand up?* I'll say it does!

If you could see our "Shake Room," where every bundle of fiber is thoroughly shaken and beaten to eliminate all imperfect pieces—you would understand *why!*

Write for your copy of "The Story of Huntsville Hickory."

HUNTSVILLE FIBER & VENEER WORKS
FRANK H. FORD, President
HUNTSVILLE, ALA.

New Answers to Pumping Problems

The REX PUMP BOOK tells a new story of value and efficiency for all contracting pumping jobs—from well-point systems to supplying a 27-E Paver—from pile-jetting to emptying a trench or manhole. If you're looking for new, efficient pumping—if you want the most pump your money can buy—

REX PUMPS

CHAIN BELT COMPANY
767 Park St. Milwaukee, Wis.

Name.....
Address.....
City.....
State.....

Get a copy of the REX PUMP BOOK today with this coupon.

ON ROAD WORK
AND PICK-AND-SHOVEL JOBS

NELSON K-2 LOADER

Moves itself,—no dragging around.
Feeds itself,—no hand shoveling.
And one man runs it.

Does the work of twenty shovelers and never gets tired.

Low price. Economical to run and built to give years of service.

N. P. NELSON IRON WORKS, Inc.
822 Bloomfield Ave. Passaic, N. J.